### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.01.97 Test oil : ISO 4113

Combination No. : 0 402 996 309

Injection pump

Pump designation : PES6P130A72URS8521 EP type number : 0 412 936 200

Governor

Governer design. : RE30

Soverner no. : 0 421 890 032

Cust. part No. : 309 4436

Customer—spec. information Customer : CDC Motor : V30 Power KW : 1007.0

### TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40 Tolerance °C : +- 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 600

#### REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS No basic setting. Setting of constant delivery

under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 4.30
Tolerance mm : ← 0.05
Check
tolerance mm : ← 0.10

Rack travel in mm : 12.00 Tolerance mm : + 0.20

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

Tolerance :  $\leftarrow$  0.30

Check

tolerance \*NW : + 0.75

## Start of delivery blocking

Tolerance :  $\leftarrow$  0.50

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Barrel no. : 1

### Beginning of delivery differende

and maximum rack

travel : 10.00
Tolerance mm : +- 1.50
Difference \* CS : 6.00

(B) POSITIONER TESTING Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 VTESTING & SETTING RACK TRAVEL SENSOR POSITION Engine speed min-1: Setting point (P, R and H pump) 3.100 Uact V 13.00 CRT mm : +/- 0.05 Tolerance mm Check tolerance mm : +/- 0.10 Check value (P, R and H pump) : Uact V 1.700 CRT mm 6.15 Tolerance mm : +/- 0.25 Check tolerance mm : +/- 0.30 Setting point (M pump) : 3.... Uact V 3.100 CRT mm : +/- 0.05 Tolerance mm Check tolerance mm : +/- 0.10 Check value (qmuq M) 1.700 Uact V CRT mm 5.50 : +/- 0.25 Tolerance mm Check : +/- 0.30 tolerance mm Stop position : Value with Uact V deenergised adjusting magnet and control rod in stop position.

0.75

: +/- 0.25

Check tolerance mm : +/-0.35ENGINE-SPEED SENSOR (All P and R pumps not H and M pumps) Test with control rod in stop position Engine speed min-1: 60 Amplitude V : 1.4 Tolerance V : +/- 0.6 Check : +/- 1.20 tolerance V Engine speed min-1: 600 Difference Amplitude to Amplitude V : max.1.4 (C) INJECTION PUMP WITH POSITIONER TEST POINT V1 Rated speed rpm : 900 Uact V 3.050 : Del. quantity cm3/1000 strokes : 425.5 Tolerance cm3/1000 strokes :  $\leftarrow$  1.0 Check tolerance cm3/1000s.: <del>←</del> 5.0 Spreed Tolerance cm3/1000 strokes : 10.0 Check tolerance cm3/1000s.14.0 FUEL DELIVERY CHARACTERISTICS 750 Rated speed rpm : Uact V 3.000 Del. quantity cm3/1000 strokes : 434.0 Tolerance cm3/1000 strokes : +- 10.0 Check tolerance cm3/1000s. : + 12.0 Spreed Tolerance cm3/1000 strokes : 16.0 Check tolerance cm3/1000s.18.0

TEST POINT L1

CRT mm

Tolerance mm

Rated speed rpm	: 400
Uact V	: 1.280
Tolerance Volt	: <b>←</b> 0.060
Check tolerance	
Volt	: ← 0.070
Del. quantity	
cm3/1000 strokes	: 49.0
Tolerance	
cm3/1000 strokes	: <del> 3.0</del>
Spreed	
Tolerance	
cm3/1000 strokes	: 8.0
Check tolerance	
cm3/1000s.	: 14.0

# STARTING FUEL DELIVERY

Rated speed rpm	:	100
Uact V	:	4.700
Del. quantity		
cm3/1000 strokes	:	260.0
Tolerance		
cm3/1000 strokes	: +-	19.0
Check tolerance		
cm3/1000s.	: +-	22.0
Spreed		
Tolerance		
cm3/1000 strokes	:	40.0
Check tolerance		
cm3/1000s.	:	50.0

### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 13.01.97 : ISO 4113

Combination No. : 9 400 030 730

Injection pump

Pump designation : PES6A95D320/3RS2881

EP type number : 9 410 037 215

Governor

Governer design. : RSV475...1100A0C844R

Governer no. : 9 420 034 710

Cust. part No. : 3928599

Customer-spec. information

Customer : CDC

Motor

: 6BTA

Power KW

: 111.0

### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C

40

Tolerance °C

: + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar :

2.0

Tolerance bar : + 0.1

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

208.5

Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

A04

x inside diameter : 2.0 x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : - 1.0

Prestroke mm : 2.85
Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50

Tolerance mm : ← 1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 : ← 0.50 Phasing

Phasing Tolerance

Check

tolerance \*NW : **←** 0.75

Start of delivery blocking

\*NW after s.o.d. : 8.50 Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : ← 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm: 12.00

Tolerance mm :  $\leftarrow$  0.05

Del. quantity cm3/1000 strokes : 102.5	+ Aneroid pressure + hPa : 1200 + Del. quantity
Tolerance cm3/1000 strokes : + 1.0	+ cm3/1000 strokes : 102.5 + Tolerance
Check tolerance	cm3/1000 strokes : +- 1.0 Check tolerance
cm3/1000s. : + 3.0	+ cm3/1000s. : + 3.0 + Spreed
Spreed	+ Tolerance + cm3/1000 strokes : 3.5
Tolerance cm3/1000 strokes : 3.5	Check tolerance cm3/1000s. : 6.0
Check tolerance cm3/1000s. : 6.0	CONTROL LEVER
	control lever
Rated speed rpm : 500	position degree : 104.0
Rack travel in mm: 5.35	tolerance degree : + 4.0
Tolerance mm : + 0.10	+ RATED SPEED
Del. quantity	+ rack travel mm : 11.00
cm3/1000 strokes : 22.0	+ Rated speed rpm : 1165
Tolerance	+ Tolerance 1/min : +- 5
cm3/1000 strokes : +- 2.0	†
Check tolerance	+ rack travel mm : 6.00
cm3/1000s. : + 4.5	Rated speed rpm : 1225
Spreed	+ Tolerance 1/min : + 5
Tolerance	†
cm3/1000 strokes : 3.5	rack travel mm : 0.85
Check tolerance	+ Tolerance mm : + 0.55
cm3/1000s. : 5.5	Rated speed rpm : 1300
	rack travel mm : 6.00
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Reted speed rpm : 1225
GUIDE SLEEVE POSITION	LOW IDLE
control lever	t control lever
position degree : - 3	+ position degree : 83.0
Rated speed rpm : 800	tolerance degree : + 4.0
Rack travel in mm : 0.50	Control lever difference
Tolerance mm : + 0.20	+ Grad : 21.0
	tolerance degree : + 6.0
governor spring	†
pre-tension	+ Setting point w/out bumper spring
click setting x : 2.50	†
	Rated speed rpm : 500
FULL LOAD DELIVERY AT FULL LOAD STOP	rack travel mm : 4.85 Tolerance mm : + 0.10
Rated speed rpm : 1100	Testing:
nateu speed (piii . 1100	I resulting.

Rated speed rpm rack travel mm Tolerance mm	: 500 : 5.35 : + 0.10	‡	Aneroid pressure hPa Rated speed rpm	: 1200 : 900
Rated speed rpm	: 100	‡	Del. quantity cm3/1000 strokes	: 120.0
CRT mm min.	: > 19.00	‡	Tolerance cm3/1000 strokes Check tolerance	: +- 2.0
TORQUE CONTROL		}	cm3/1000s.	: + 4.0
Rated speed rpm rack travel mm	: 12.00	‡	Aneroid pressure hPa Rated speed rpm	: -
Tolerance mm		‡	Del. quantity cm3/1000 strokes	: 84.0
Rated speed rpm rack travel mm Tolerance mm	: 13.35	‡	Tolerance cm3/1000 strokes Check tolerance	: +- 1.0
Rated speed rpm	: 1000	‡	cm3/1000s.	: <b>←</b> 3.0
rack travel mm Tolerance mm		+	STARTING FUEL DEL	TUEDV
Rated speed rpm rack travel mm	: 900 : 13.30	Ī	STARTING FUEL DEL Rated speed rpm	: 100
Tolerance mm	: + 0.20	}	rack travel mm Tolerance mm	: 20.50 : + 0.50
ANEROID/ALTITUDE COMPENSATOR TEST		<del></del> †	Del. quantity cm3/1000 strokes Tolerance	
SETTING		Ī	cm3/1000 strokes Check tolerance cm3/1000s.	
Rated speed rpm	: 500	+	CIII.57 1 0003 .	15.0
Pressure hPa		Ŧ		
Pressure hPa Rated speed rpm	: - : 500	1	LOW IDLE	
rack travel mm Tolerance mm	: 10.20 : + 0.10	‡	Rated speed rpm Del. quantity	
MEASUREMENT		‡	cm3/1000 strokes Tolerance cm3/1000 strokes	
Rated speed rpm	: 500	Ī	Check tolerance cm3/1000s.	: + 4.5
Pressure hPa rack travel mm	: 865 : 12.60	‡	Spreed Tolerance	
Tolerance mm	: ← 0.20	‡	cm3/1000 strokes Check tolerance	
Pressure hPa rack travel mm Tolerance mm	: 500 : 11.00 : +- 0.20	‡	cm3/1000s.	: 5.5
Start interlock		Ī		
		‡	End of test speci	fication sheet
FUEL DELIVERY CHA	RACTERISTICS	$\frac{1}{1}$		

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 18,12,96 : ISO 4113

Combination No. : 0 402 046 874

Injection pump

Pump designation : PES6P120A720RS3360

EP type number : 0 412 026 785

Governor

Governer design. : RQV300...1100PA1254K

Governer no. : 0 421 815 485

Cust. part No. :

Customer-spec. information

Motor

Customer : IVECO-FIAT : 8360.46.4107

Power KW : 198.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temo. °C

40

Tolerance °C

: +- 2.0

Overflow valve : 2 417 413 034

Inlet press. bar : 2.5

Overflow quantity

min. L/h : 175 Tolerance L/h : + 20.0

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter :

3.0 600

x length mm :

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.15 Tolerance mm : + 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm: 14.00

: **←** 0.50 Tolerance mm

Firing order : 1-5-3-6-2-

: 4

Tolerance : 0-60-120-180-240

Check

tolerance \*NW : +- 0.50

Start of delivery mark

Check

tolerance \*NW : + 0.40

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

	1
Rack travel in mm : 14.05	Rated speed rpm : 1450
Tolerance mm : +- 0.05	guide sleeve
	travel mm : 13.50
Del. quantity	Tolerance mm : + 0.50
cm3/1000 strokes : 184.0	1
Tolerance	GUIDE SLEEVE POSITION
cm3/1000 strokes : + 1.0	+
	+
Check tolerance	control lever
cm3/1000s. : + 4.0	position degree : - 1
	Rated speed rpm : 1325
Spreed	t
•-1	Rack travel in mm: 10.00
Tolerance 5.0	Tolerance mm : +- 2.70
cm3/1000 strakes : 5.0	†
Check tolerance	FULL LOAD OF THERY AT FULL LOAD STOR
cm3/1000s. : 9.0	FULL LOAD DELIVERY AT FULL LOAD STOP
tilis/10005. : 9.0	Rated speed rpm : 1100
	+ Rated speed rpm : 1100 + Aneroid pressure
	+ hPa : 1200
Rated speed rpm : 300	Del. quantity
natea opeca i piii i 300	cm3/1000 strokes : 184.0
Rack travel in mm : 6.60	+ Tolerance
Tolerance mm : + 0.10	cm3/1000 strokes : + 1.0
Del. quantity	- Check tolerance
cm3/1000 strokes : 25.0	+  cm3/1000S. : + 4.0
Tolerance	Spreed
cm3/1000 strokes : + 3.0	Tolerance
Check tolerance	cm3/1000 strokes : 5.0
cm3/1000S. : + 6.0	+ Check tolerance
Spreed	+ cm3/1000s. : 9.0
Tolerance	†
cm3/1000 strokes : 8.0	†
Check tolerance	
cm3/1000s. : 12.0	CONTROL LEVER
•	†
(D) SETTING OF INJECTION DUMP	control lever
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	position degree : 116.0
WITH GOVERNOR	tolerance degree : +- 4.0
	RATED SPEED
GUIDE SLEEVE TRAVEL	rack travel mm : 13.00
SOLDE OFFICE HAVEE	Rated speed rpm : 1145
Rated speed rpm : 1156	Tolerance 1/min : +- 5
guide sleeve	Check
travel mm : 9.00	speed 1/min : + 10
Tolerance mm : + 0.15	1
	rack travel mm : 4.00
Rated speed rpm : 300	Rated speed rpm : 1260
guide sleeve	Tolerance 1/min : +- 15
travel mm : 2.68	Check
Tolerance mm : + 0.20	+ speed 1/min : +- 20
	†
Rated speed rpm : 380	rack travel mm : 0.50
guide sleeve	Tolerance mm : + 0.50
travel mm : 3.01	Rated speed rpm : 1400
Tolerance mm : +- 0.25	<del>†</del>

LOW IDLE	
control lever position degree tolerance degree	
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 300 : 6.60 : ← 0.10
Rated speed rpm	: 225
CRT mm min.	: > 8.10
Rated speed rpm	: 330
TORQUE CONTROL	
Rated speed rpm rack travel mm Tolerance mm	: 1100 : 14.05 : +- 0.05
Rated speed rpm rack travel mm Tolerance mm	: 700 : 13.60 : + 0.15
Rated speed rpm rack travel mm Tolerance mm	: 850 : 14.25 : ← 0.15
Rated speed rpm rack travel mm Tolerance mm	: 500 : 13.30 : ← 0.20
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 850 : 1200 : 14.20 : + 0.15
Pressure hPa Rated speed rpm rack travel mm Tolerance mm	: - : 850 : 10.80 : +- 0.20
MEASUREMENT	

Rated speed rpm	: 850
Pressure hPa rack travel mm Tolerance mm	: 640 : 12.80 : +- 0.20
Pressure hPa rack travel mm Tolerance mm	: 380 : 11.60 : +- 0.05
Start interlock	
Rated speed rpm Rated speed rpm	: > 190 : < 220
Check speed 1/min Check	: > 170
speed 1/min	: < 240
FUEL DELIVERY CHA	ARACTERISTICS
Aneroid pressure hPa Rated speed rpm	: 1200 : 700
Del. quantity cm3/1000 strokes Tolerance	
cm3/1000 strokes Check tolerance	: <del>-</del> 3.0
cm3/1000s.	: +- 6.0
Aneroid pressure hPa Rated speed rpm	: 1200 : 500
Del. quantity cm3/1000 strokes	: 160.0
Tolerance cm3/1000 strokes	: + 3.0
Check tolerance cm3/1000s.	: ← 6.0
Aneroid pressure	
Rated speed rpm Del. quantity	: 500
cm3/1000 strokes Tolerance	: 88.0
cm3/1000 strokes Check tolerance	: +- 1.0
cm3/1000s.	: +- 4.0
STARTING FUEL DEL	IVERY
Rated speed rpm rack travel mm	: 100 : 12.50
Tolerance mm	: +- 0.30

Del. quentity		
cm3/1000 strokes	:	90.0
Tolerance		
cm3/1000 strokes	: +-	15.0
Check tolerance		
cm3/1000S.	: +-	19.0

# LOW IDLE

Rated speed rpm	:	300
Del. quantity cm3/1000 strokes	,	25.0
Tolerance	•	٥.0
cm3/1000 strokes	: +-	3.0
Check tolerance		4.0
cm3/1000S.	: +-	6.0
Spreed Tolerance		
cm3/1000 strokes	:	8.0
Check tolerance		
cm3/1000S.	:	12.0

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 10.12.96 Test oil : ISO 4113

Combination No. : 0 402 066 708

Injection pump

Pump designation : PES6P12OA12ORS3358

EP type number : 0 412 026 784

Governor

Governer design. : RSV475...1150P2A619

Governer no. : 0 421 833 522

Cust. part No. : 3283019

Customer-spec. information

Customer : CDC

: 6BTA-590 ELITÉ Motor

Power KW : 136.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5

Overflow quantity

min. l/h : 100 Tolerance l/h : + 20.0

Test nozzle holde

: 1 688 901 103 assembly

Opening pressure

: 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter:

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 2.85
Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : ← 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240
Tolerance : + 0.30

Check

tolerance \*NW : **←** 0.50

Start of delivery blocking

\*NW after s.o.d. : 6.75

Tolerance :  $\leftarrow$  0.10

Check

tolerance \*NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1150

1	
Rack travel in mm: 12.90 Tolerance mm: + 0.05	FULL LOAD DELIVERY AT FULL LOAD STOP
+	
Del. quantity + cm3/1000 strokes : 179.0 +	Rated speed rpm : 1150 Aneroid pressure
+	hPa : 1500
Tolerance cm3/1000 strokes : + 1.0 +	Del. quantity cm3/1000 strokes : 179.0
Charlest to Language	Tolerance
Check tolerance cm3/1000s. : + 3.0	cm3/1000 strokes : + 1.0 Check tolerance
Spreed	cm3/1000S. : +- 3.0 Spreed
opi eed T	Tolerance
Tolerance	cm3/1000 strokes : 4.0
cm3/1000 strokes : 4.0	Check tolerance cm3/1000s. : 7.5
Check tolerance	(115/10003. : 7.5
cm3/1000s. : 7.5	
	CONTROL LEVER
+	
Rated speed rpm : 475	control lever position degree : 112.0
Rack travel in mm: 7.20	position degree : 112.0 tolerance degree : + 4.0
Tolerance mm : + 0.10	
Del. quantity	RATED SPEED
cm3/1000 strokes : 60.0	rack travel mm : 11.90
cm3/1000 strokes : + 2.0	Rated speed rpm : 1195 Tolerance 1/min : +- 5
Check tolerance	roceratice tribiti
cm3/1000s. : +- 4.5	rack travel mm : 4.00
Spreed	Rated speed rpm : 1330
Tolerance + cm3/1000 strokes : 6.0 +	Tolerance 1/min : + 15
Check tolerance	rack travel mm : 0.85
cm3/1000s. : 9.0	Tolerance mm : +- 0.55
+	Rated speed rpm : 1400
(B) SETTING OF INJECTION PUMP	nock through any and 4 00
WITH GOVERNOR	rack travel mm : 4.00 Rated speed rpm : 1345
+	nated speed (pill . 1345)
+	
GUIDE SLEEVE POSITION	
GOIDE SEELVE FOSITION	LOW IDLE
+	
control lever	
position degree : -3 Rated speed rpm : 800	control lever position degree : 90.0
Rated speed rpiii : 000	tolerance degree : +- 4.0
Rack travel in mm: 0.50	,
Tolerance mm : + 0.20	Setting point w/out bumper spring
governor spring .	Rated speed rpm : 475
pre-tension +	rack travel mm : 6.70 Tolerance mm : + 0.10
click setting x : 4.75	Tolerance mm : + 0.10
‡	Testing:
·	=

		+ Tolerance	
Rated speed rpm	: 475	+ cm3/1000 strokes	
rack travel mm		+ Check tolerance	
Tolerance mm	; - 0.10	+ cm3/1000s.	: +- 6.0
rack travel mm	: 2.00	+ Spreed + Tolerance	
Rated speed rpm		+ cm3/1000 strokes	s : 12.0
Tolerance 1/min		+ Check tolerance	
TOCCI GITCE TANKITT	30	- cm3/1000s.	: 16.0
	· <del></del>	CHS/ 10003.	. 10.0
TORQUE CONTROL		Aneroid pressure	9
		→ hPa	: -
Rated speed rpm		+ Rated speed rpm	: 500
rack travel mm	: 12.90	+ Del. quantity	
Tolerance mm	: +- 0.05	+ cm3/1000 strokes	s: 90.0
	7.0	+ Tolerance	
Rated speed rpm	: 750	+ cm3/1000 strokes	
rack travel mm		+ Check tolerance	
Tolerance mm	: <b>←</b> 0.10	+ cm3/1000s.	: +- 4.0
		I	
ANEROID/ALTITUDE		+	<del></del>
COMPENSATOR TEST		STARTING FUEL DE	ELIVERY
		t Bakad an and ann	400
SETTING		+ Rated speed rpm	
2E1 1 TIAG		+ rack travel mm + Tolerance mm	
Rated speed rpm	: 500		: 4- 0.75
Pressure hPa	: 1500	+ Del. quantity + cm3/1000 stroke:	s : 165.0
rack travel mm	: 12.90	Tolerance	5 , 100,0
Tolerance mm	: + 0.05	+ cm3/1000 strokes	s : +- 20 0
	0.09	- Check tolerance	
Pressure hPa	: -	+ cm3/1000s.	
Rated speed rpm	: 500	+	
rack travel mm	: 8.60	+	
Tolerance mm	: <b>←</b> 0.20	+	
MEACUDEMENT		101 701 5	
MEASUREMENT		T LOW IDLE	
Rated speed rpm	: 500	Rated speed rpm	: 475
and the same of the same		Del. quantity	
Pressure hPa	: 900	+ cm3/1000 strokes	s : 60.0
rack travel mm	: 11.10	+ Tolerance	
Tolerance mm	: <b>←</b> 0.20	+ cm3/1000 strokes	
		+ Check tolerance	
Pressure hPa	: 560	+ cm3/1000s.	: +- 4.5
rack travel mm	: 9.60	+ Spreed	
Tolerance mm	: <b>←</b> 0.05	† Tolerance	
انتاستخداد مسمحة		+ cm3/1000 strokes	
Start interlock		+ Check tolerance	
		cm3/1000s.	: 9.0
		<del></del>	
FUEL DELIVERY CHA	RACTERISTICS	†	
Aneroid pressure		1	
hPa	: 1500	Find of test spec	cification sheet
Rated speed rpm		± 2.12 of cest spec	J. TOGETON SHEEL
Del. quantity		<b></b>	
cm3/1000 strokes	: 193.0	1	
		1	

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 17.01.97 Test oil : ISO 4113

Combination No. : 0 402 074 700

Injection pump

Pump designation : PES4P110B720RS3383

EP type number : 0 412 014 701

Governor

Governer design. : RSV300...1100P1A667

Governer no. : 0 421 833 582

Cust. part No. : 9279831

Customer-spec. information

Customer : LIEBHERR : D 924 TI-E A2 Motor

Power KW : 147.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C

40

Tolerance \*C

: +- 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Tolerance l/h:  $\leftarrow$  10.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar

207.0

Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 3.20Tolerance mm :  $\leftarrow 0.05$ 

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 4-2-1-3

: 0-90-180-270 : +- 0.30 Phasing

Tolerance

Check

tolerance \*NW : +- 0.50

Start of delivery mark

Tolerance : +- 0.10

Check

tolerance \*NW : +- 0.75

Barrel no. : 4

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.00

Tolerance mm :  $\leftarrow$  0.05

Del. quantity cm3/1000 strokes : 189.0	Aneroid pressure hPa : 1420 Del. quantity
Tolerance cm3/1000 strokes : + 1.0	cm3/1000 strokes : 189.0
Check tolerance	cm3/1000 strokes : +- 1.0 Check tolerance
cm3/1000s. : +- 3.5	cm3/1000s. : + 3.5 Spreed
Spreed	Tolerance cm3/1000 strokes : 4.0
Tolerance cm3/1000 strokes : 4.0	Check tolerance cm3/1000S. : 7.5
Check tolerance cm3/1000s. : 7.5	†
CIID7 (0005 7.5	CONTROL LEVER
	control lever
Rated speed rpm : 400	position degree : 106.0 tolerance degree : + 4.0
Rack travel in mm: 4.20	+
Toterance mm : + 0.10	RATED SPEED
Del. quantity cm3/1000 strokes : 20.0	rack travel mm : 12.00 Rated speed rpm : 1040
Tolerance	Tolerance 1/min : + 5
cm3/1000  strokes : + 3.0	+
Check tolerance	rack travel mm : 4.00
cm3/1000s. : + 5.5	Rated speed rpm : 1090
Spreed	Tolerance 1/min : +- 15
Tolerance - cm3/1000 strokes : 4.5	† rack travel mm : 0.85
Check tolerance	Tolerance mm : + 0.55
cm3/1000s. : 7.5	Rated speed rpm : 1200
	+
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 4.00 Rated speed rpm : 1095
	+
GUIDE SLEEVE POSITION	LOW IDLE
control lever	- control lever
position degree : - 3	position degree : 74.0
Rated speed rpm : 800	tolerance degree : + 4.0
Rack travel in mm: 0.50 - Tolerance mm: + 0.20	Setting point w/out bumper spring
	Rated speed rpm : 400
governor spring	rack travel mm : 3.70
pre-tension -	Tolerance mm : +- 0.10
click setting x : 4.00	Tosting
	+ Testing:
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 400
•	rack travel mm : 4.20
Rated speed rpm : 1000	Tolerance mm : + 0.10

rack travel mm		+ Tolerance			
Rated speed rpm				: +- 3.0	
Tolerance 1/min	; <b>←</b> 30	+ Check tole			
		+ cm3/1000s.	•	: +- 6.0	
TORQUE CONTROL		Anaroid n	POCCLIBO		
TORGOE CONTROL		+ Aneroid pr + hPa	ressure	: 1420	
Rated speed rpm	• 1000	Rated spee	nd nnm		
rack travel mm		Del. quant		. 700	
Tolerance mm		T cm3/1000 s	strokes	: 205.0	
TOCCI WITCE MIN	0.05	+ Tolerance		. 205.0	
Rated speed rpm	: 500			: +- 3.0	
		- Check tole			
rack travel mm Tolerance mm	: ← 0.10	+ cm3/1000s		: +- 6.0	
10(01 01100 1111		1	•	0.0	
Rated speed rpm	: 700	Aneroid p	ressure		
rack travel mm	: 13.00	+ hPa		: -	
Tolerance mm	: <b>←</b> 0.10	+ Rated spec	ed rpm	: 550	
		+ Del. quant		-	
				: 177.0	
ANEROID/ALTITUDE		+ Tolerance			
COMPENSATOR TEST		+ cm3/1000 s	strokes	: ← 1.0	
		+ Check tole			
		+ cm3/1000s.	•	: <del>+-</del> 3.5	
SETTING		+			
Datad aread are	. 550	†			
Rated speed rpm Pressure hPa	: 550	CTARTING		VEDV	
		+ STARTING F	FOEL DELI	VERY	
rack travel mm		T Botal and	1	400	
Tolerance mm	: <del>+</del> 0.10	+ Rated spec		: 100	
Pressure hPa	_	+ rack trave		: 20.50	
Rated speed rpm	: -	Tolerance		: <del>+-</del> 0.50	
		+ Del. quant	tity	: 150.0	
rack travel mm Tolerance mm		Tolerance		: 150.0	
loter duce in	. +- 0.20			: +- 15.0	
MEASUREMENT		+ Check tole		: +- 15.0	
MEASUREMENT		- cm3/1000s.		: +- 19.0	
Rated speed rpm	: 550	I (mb/10003)	•	19.0	
nated speed (pill	•	I			
Pressure hPa	: 910	1			
rack travel mm	: 12.70				
Tolerance mm	: + 0.05	↓ LOW IDLE			
		+			
Pressure hPa	: 780	+ Rated spec	ed rpm	: 400	
rack travel mm	: 11.60	+ Del. quant	tity		
Tolerance mm	: <b>←</b> 0.10	+ cm3/1000 s	strokes	: 20.0	
		+ Tolerance			
Start interlock		+ cm3/1000 s		: + 3.0	
		+ Check tole			
		+ cm3/1000s.		: +- 5.5	
FUEL DELIVERY CHA	ARACTERISTICS	+ Tolerance		_	
		+ cm3/1000 s		: 4.5	
Aneroid pressure	4.00	+ Check tole			
hPa	: 1420	+ cm3/1000s.	•	: 7.5	
Rated speed rpm	: 500	†			
Del. quantity	-41 -	†			
cm3/1000 strokes	: 214.0	+			

### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 21.01.97 : ISO 4113

Combination No. : 0 402 074 700A

Injection pump

Pump designation : PES42110B720RS3383

EP type number : 0 412 014 701

Governor

Governer design. : RSV300...1100P1A667

Governer no. : 0 421 833 582

Cust. part No. : 9279831

Customer-spec. information

Customer : LIEBHERR

Motor

: D 924 TI-E A2

Power KW

: 149.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C

40

Tolerance °C

: +- 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5

Tolerance bar

: <del>+</del> 0.1

Tolerance l/h: +- 10.0

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

207.0

Tolerance bar : +- 1.5

Test lines : 1 680 750 908

Outside diameter : 6.0

x inside diameter :

2.0

x length mm :

600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : +- 1.0

Prestroke mm : 3.20

: **←** 0.05 Tolerance mm

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm: 10.50

Tolerance mm :  $\leftarrow$  1.50

Firing order : 4-2-1-3

Phasing : 0-90-180-270

Tolerance ; +- 0.30

Check

tolerance \*NW : **←** 0.50

Start of delivery mark

Tolerance : + 0.10

Check

tolerance \*NW : +- 0.75

Barrel no. : 4

BASIC SETTING

Rated speed rpm :

890

Rack travel in mm: 13.85

Tolerance mm :  $\leftarrow$  0.05

Del. quantity	+ Tolerance
cm3/1000 strokes : 203.0	+ cm3/1000 strokes : +- 1.0
Tolon	+ Check tolerance
Tolerance	+ cm3/1000s. : +- 3.5
cm3/1000 strokes : + 1.û	Spreed
Check tolerance	+ Tolerance
	+ cm3/1000 strokes : 4.0
cm3/1000s. : $\leftarrow$ 3.5	+ Check tolerance
Spreed	+ cm3/1000s. : 7.5
	I
Tolerance	
cm3/1000 strokes : 4.0	+ CONTROL LEVER
	+
Check tolerance	+ control lever
cm3/1000s. : 7.5	+ position degree : 100.0
	+ tolerance degree : + 4.0
	1
Pated and and 500	+ RATED SPEED
Rated speed rpm : 500	rack travel mm : 12.85
Rack +pouch in man / 20	Rated speed rpm : 910
Rack travel in mm : 4.20 Tolerance mm : + 0.10	+ Tolerance 1/min : ← 5
Del. quantity	+ rack travel mm : 4.00
cm3/1000 strokes : 24.0	+ Rated speed rpm : 4.00
Tolerance 24.0	+ Tolerance 1/min : + 15
cm3/1000 strokes : + 3.0	T rocerance immin : — 15
Check tolerance	T rack travel mm : 0.85
cm3/1000s. : + 5.5	+ Tolerance mm : + 0.55
Spreed	
Tolerance	Rated speed rpm : 1200
cm3/1000 strokes : 4.5	T rack travel mm : 4.00
Check tolerance	
cm3/1000s. : 7.5	+ Rated speed rpm : 995
. 7.3	I
	1
(B) SETTING OF INJECTION PUMP	
WITH GOVERNOR	+ LOW IDLE
	†
	†
GUIDE SLEEVE POSITION	+ control lever
AATAE SEEENE LOSTITOM	position degree : 80.0
	tolerance degree : + 4.0
control lever	Setting point w/out bumper spring
position degree : - 3	account to the my our pumper, she mig
· · · · · · · · · · · · · · · · · · ·	Rated speed rpm : 500
governor spring	+ rack travel mm : 2.40
pre-tension	+ Tolerance mm : + 0.10
click setting x : 4.00	
	+ Testing:
	+
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 500
0.4	+ rack travel mm : 4.20
Rated speed rpm : 890	+ Tolerance mm : ← 0.10
Aneroid pressure	†
hPa : 1410	† <del></del>
Del. quantity	+ TORQUE CONTROL
cm3/1000 strokes : 203.0	<b>†</b>
	+ Rated speed rpm : 890

rack travel mm	: 13.85	1	Del. quantity	
Tolerance mm		1	cm3/1000 strokes	• 216.0
TOTEL GITTE THE		1	Tolerance	. 210.0
Rated speed rpm	: 500	I	cm3/1000 strokes	7.0
rack travel mm	: 13.85	T	Check tolerance	. += 5.0
Tolerance mm	: + 0.10	T	cm3/1000s.	· + 6.0
locerance min	; +- 0.10	Ť	CM3/10005.	: + 6.0
0-4-44	. 700	†		
Rated speed rpm	: 700 : 13.85	†	Aneroid pressure	
rack travel mm		†	hPa	: -
Tolerance mm	: <b>←</b> 0.10	†	Rated speed rpm	: 500
		t	Del. quantity	
			cm3/1000 strokes	: 177.0
ANEROID/ALTITUDE		t	Tolerance	
COMPENSATOR TEST		+	cm3/1000 strokes	: <b>←</b> 1.0
		+	Check tolerance	
		. +	cm3/1000s.	: +- 3.5
SETTING		+		
		+		
Rated speed rpm	: 500	+		
Pressure hPa	: 1410	+	STARTING FUEL DEL	IVERY
rack travel mm	: 13.85	+		
Tolerance mm	: <b>←</b> 0.10	+	Rated speed rpm	: 100
-		1	rack travel mm	
Pressure hPa	: -	1	Tolerance mm	
Rated speed rpm	: 500	1	Del. quantity	0.30
rack travel mm		1	cm3/1000 strokes	: 150.0
Tolerance mm	: <b>←</b> 0.20	1	Tolerance	. 150.0
TOTEL ON ICE THAI		I	cm3/1000 strokes	· + 15 0
MEASUREMENT		I	Check tolerance	. += 15.0
MEASUREMENT		T	cm3/1000s.	: <b>←</b> 19.0
Batad aread are	: 500	T	Cm3/10003.	: 19.0
Rated speed rpm	: 500	Ť		
D	: 870	†		
Pressure hPa		†		
rack travel mm	: 13.00	Ť		
Tolerance mm	: <b>←</b> 0.05	†	LOW IDLE	
- 10	775	†		500
Pressure hPa	: 775	t	Rated speed rpm	
rack travel mm		t	Del. quantity	
Tolerance mm	: <b>←</b> 0.10	+	cm3/1000 strokes	: 24.0
		+	Tolerance	
Start interlock		+	cm3/1000 strokes	: <b>←</b> 3.0
		+	Check tolerance	
		+	cm3/1000s.	: <del>+-</del> 5.5
		<del></del> +	Spreed	
FUEL DELIVERY CHA	RACTERISTICS	+	Tolerance	
		+	cm3/1000 strokes	: 4.5
Aneroid pressure		+	Check tolerance	
hPa	: 1410	+	cm3/1000s.	: 7.5
Rated speed rpm	: 500	1		
Del. quantity		1		
cm3/1000 strokes	: 230.0	1		
Tolerance	<del>-</del> <del>-</del>	1		
cm3/1000 strokes	: <b>←</b> 3.0	1		
Check tolerance		1	End of test speci	fication sheet
cm3/1000s.	: +- 6.0	1	and or cost open	Tradition SHCCL
JIII / 10003 .		I		
Aneroid pressure		I		
and the second s	: 1410	T		
hPa Rated speed rom		T		
RAIPO SOPPO COM	. / ( A D )	-		

Rated speed rpm

1410 700

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 21,01,97

Test oil

: ISO 4113

Combination No. : 0 402 076 748A

Injection pump

Pump designation : PES6P110A720RS3305

EP type number : 0 412 016 742

Governor

Governer design. : RSV300...1100P1A555

Governer no. : 0 421 833 379

Cust. part No. : 9271058

Customer-spec. information

Customer : LIEBHERR

Motor

: D 926 TI

Power KW

: 210.0

TEST BENCH REQUIREMENTS

Inlet line

: 4.1

Test oil inlet

temp. °C

Tolerance °C

2.0

Overflow valve : 1 417 413 049

Inlet press. bar :

1.5

Tolerance bar

: **←** 0.1

Overflow quantity

min. l/h : 130 Tolerance l/h : + 10.0

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

207.0

: +- 1.5

Tolerance bar

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter :

2.0

x length mm :

600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm 3,20

Tolerance mm : **←** 0.05

Check

tolerance mm : **←** 0.10

Rack travel in mm: 10.50

Tolerance mm : **←** 1.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

Tolerance : **←** 0.30

Check

tolerance \*NW : **←** 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm :

1000

Rack travel in mm: 11.25

Tolerance mm

: **←** 0.05

Del. quantity

cm3/1000 strokes : 165.0

Tolerance	Spreed
cm3/1000 strokes : + 1.0	- Spreed - Tolerance
Simo, 1000 3610Ke3 : 110	- cm3/1000 strokes : 4.0
Check tolerance	Check tolerance
cm3/1000s. : +- 3.5	- cm3/1000s. : 7.5
CINO/ 10003:	- CIII3/10003. : 7.3
Spreed	
opi ced	
Tolerance	- CONTROL LEVER
cm3/1000 strokes : 4.0	CONTROL LEVER
\$100 361 3K63 1 4.0	control lever
Check tolerance	position degree : 108.0
cm3/1000s. : 7.5	tolerance degree : + 4.0
	- Cocci dilice degi ee 4.0
	RATED SPEED
	rack travel mm : 10.25
Rated speed rpm : 400	Rated speed rpm : 1025
	Tolerance 1/min : + 5
Rack travel in mm: 4.40	•
Tolerance mm : +- 0.10	rack travel mm : 4.00
Del. quantity	Rated speed rpm : 1095
cm3/1000 strokes : 36.0	Tolerance 1/min : + 15
Tolerance	
cm3/1000 strokes : + 3.0	rack travel mm : 0.85
Check tolerance	- Tolerance mm : ← 0.55
cm3/1000s. : + 5.5	Rated speed rpm : 1260
Spreed -	
Tolerance -	rack travel mm : 4.00
cm3/1000 strokes : 4.5	Rated speed rpm : 1100
Check tolerance	
cm3/1000s. : 7.5	
+	
(2)	
(B) SETTING OF INJECTION PUMP	LOW IDLE
WITH GOVERNOR	
	e control lover
	control lever
GUIDE SLEEVE POSITION	position degree : 78.0
GOIDE SCEENE SOSTITON	tolerance degree : +- 4.0
]	- - Setting point w/out bumper spring
control lever	received bount myour position, shilling
position degree : -3	- Rated speed rpm : 400
Rated speed rpm : 800	rack travel mm : 3.90
- Spran Spran Spran	rack travel mm : 3.90 Tolerance mm : + 0.10
Rack travel in mm: 0.50	
Tolerance mm : + 0.20	Tooking
	- Testing:
Total ratio	- Testing: -
Total reminer	•
FULL LOAD DELIVERY AT FULL LOAD STOP	- - Rated speed rpm : 400
FULL LOAD DELIVERY AT FULL LOAD STOP	•
FULL LOAD DELIVERY AT FULL LOAD STOP - Rated speed rpm : 1000 -	- Rated speed rpm : 400 - rack travel mm : 4.40
FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000  Aneroid pressure	- Rated speed rpm : 400 - rack travel mm : 4.40 - Tolerance mm : + 0.10 - rack travel mm : 2.00
FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 1100	- Rated speed rpm : 400 - rack travel mm : 4.40 - Tolerance mm : + 0.10 - rack travel mm : 2.00 - Rated speed rpm : 450
FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 1100 Del. quantity	- Rated speed rpm : 400 - rack travel mm : 4.40 - Tolerance mm : + 0.10 - rack travel mm : 2.00
FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 1100 Del. quantity cm3/1000 strokes : 165.0	Rated speed rpm : 400 rack travel mm : 4.40 Tolerance mm : + 0.10 rack travel mm : 2.00 Rated speed rpm : 450
FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 1100 Del. quantity cm3/1000 strokes : 165.0 Tolerance	Rated speed rpm : 400 rack travel mm : 4.40 Tolerance mm : + 0.10  rack travel mm : 2.00 Rated speed rpm : 450 Tolerance 1/min : + 30
FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 1100 Del. quantity cm3/1000 strokes : 165.0 Tolerance cm3/1000 strokes : + 1.0	Rated speed rpm : 400 rack travel mm : 4.40 Tolerance mm : + 0.10 rack travel mm : 2.00 Rated speed rpm : 450
FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 1100 Del. quantity cm3/1000 strokes : 165.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance	Rated speed rpm : 400 rack travel mm : 4.40 Tolerance mm : + 0.10  rack travel mm : 2.00 Rated speed rpm : 450 Tolerance 1/min : + 30  TORQUE CONTROL
FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 1100 Del. quantity cm3/1000 strokes : 165.0 Tolerance cm3/1000 strokes : + 1.0	Rated speed rpm : 400 rack travel mm : 4.40 Tolerance mm : + 0.10  rack travel mm : 2.00 Rated speed rpm : 450 Tolerance 1/min : + 30

rack travel mm Tolerance mm	: 11.25 : ← 0.05
Rated speed rpm rack travel mm	: 600 : 11.25 : + 0.10
Tolerance mm	: <b>+</b> 0.10
Rated speed rpm rack travel mm	: 500 : 11.30 : + 0.10
Tolerance mm	
Rated speed rpm rack travel mm	: 450 : 12.20
Tolerance mm	: +- 0.10
Rated speed rpm rack travel mm	: 12.20
Tolerance mm	: + 0.15
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
	. 550
Rated speed rpm Pressure hPa	: 1100
rack travel mm Tolerance mm	: 11.25 : ← 0.05
Pressure hPa	: -
Rated speed rpm rack travel mm	: 550 : 9.75
Tolerance mm	: <b>+</b> 0.10
MEASUREMENT	
Rated speed rpm	: 550
Pressure hPa	: 650
rack travel mm Tolerance mm	: 11.00 : +- 0.05
Pressure hPa	: 550
rack travel mm Tolerance mm	: 10.25 : ← 0.10

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa 1100 Rated speed rpm 600

Del. quantity

cm3/1000 strokes : 186.0

Tolerance		
cm3/1000 strokes Check tolerance	: +-	2.0
cm3/1000s.	: +-	5.0
Aneroid pressure		
hPa	:	_
Rated speed rpm	•	550
Del. quantity		
cm3/1000 strokes	:	152.5
Tolerance		
cm3/1000 strokes	: +-	1.0
Check tolerance		
cm3/1000s.	: +-	3.5

## STARTING FUEL DELIVERY

Rated speed rpm	:	100
rack travel mm	:	20.50
Tolerance mm	: +-	0.50
Del. quantity		
cm3/1000 strokes	•	145.0
Tolerance		
cm3/1000 strokes	: +-	10.0
Check tolerance		
cm3/1000s.	: +-	14.0

## LOW IDLE

Rated speed rpm Del. quantity	:	400	
cm3/1000 strokes Tolerance	:	35.0	
cm3/1000 strokes Check tolerance	: +-	3.0	
cm3/1000s. Spreed	: +	5.5	
Tolerance cm3/1000 strokes	•	4.5	
Check tolerance cm3/1000s.	•	7.5	
	-		

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 25.11.96 Test oil : ISO 4113

Combination No. : 0 402 076 7486

Injection pump

Pump designation : PES6P110A720RS3305 EP type number : 0 412 016 742

Governor

Governer design. : RSV300...1100P1A555

Governer no. : 0 421 833 379

Cust. part No. : 9271056

Customer-spec. information Customer : LIEBHERR Motor : D 926 TI

Power KW : 218.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C Tolerance \*C : +- 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Overflow quantity

min. L/h : 130 Tolerance L/h : + 10.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 207.5 bar Tolerance bar : + 1.5 Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 3.20
Tolerance mm : + 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm: 10.50 Tolerance ma : +- 1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 : +- 0.30 Phasing

Tolerance

Check

tolerance \*NW : +- 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm: 12.30 Tolerance mm : ← 0.05

Del. quantity cm3/1000 strokes : 181.0	Tolerance : 4.0
Tolerance cm3/1000 strokes : + 1.0	Check tolerance cm3/1000s. : 7.5
Check tolerance cm3/1000s. : + 3.5	CONTROL LEVER
Spreed	+ control lever
Spi eed	position degree : 100.0
Tolerance cm3/1000 strokes : 4.0	tolerance degree : + 4.0
Check tolerance	+ RATED SPEED + rack travel mm : 10.85
cm3/1000s. : 7.5	Rated speed rpm : 925 Tolerance 1/min : +- 5
	+ rack travel mm : 4.00
Rated speed rpm : 400	Rated speed rpm : 980
Rack travel in mm : 4.40	Tolerance 1/min : + 15
Tolerance mm : +- 0.10	rack travel mm : 4.00
Del. quentity cm3/1000 strokes : 30.0	Rated speed rpm : 995
cm3/1000 strokes : 30.0 Tolerance	Į
cm3/1000 strokes : +- 3.0	†
Check tolerance cm3/1000s. : + 5.5	LOW IDLE
Spreed Tolerance	1
cm3/1000 strokes : 4.5	control lever
Check tolerance cm3/1000s. : 7.5	position degree : 75.0 tolerance degree : + 4.0
cm3/1000s. : 7.5	tolerance degree : + 4.0
(D) OFTEND OF TAUFOTYON DIME	Setting point w/out bumper spring
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	+ Rated speed rpm : 500
	+ rack travel mm : 3.90
	Tolerance mm : ← 0.10
GUIDE SLEEVE POSITION	Testing:
	Rated speed rpm : 500
control lever	rack travel mm : 4.40 Tolerance mm : + 0.10
position degree : - 3	† loterance mm : - 0.10
FULL LOAD DELIVERY AT FULL LOAD STOP	TORQUE CONTROL
Rated speed rpm : 900	† Rated speed rpm : 900
Aneroid pressure	rack travel mm : 12.30
hPa : 1150 Del. quantity	Tolerance mm : $\leftarrow$ 0.05
cm3/1000 strokes : 181.0	Rated speed rpm : 500
Tolerance	rack travel mm : 12.30
cm3/1000 strokes : + 1.0 Check tolerance	Tolerance mm : + 0.10
cm3/1000s. : + 3.5	Rated speed rpm : 700
Spreed	rack travel mm : 12.30

Tolerance mm	: <b>+</b> 0.10
Rated speed rpm	: 450
rack travel mm	: 13.70
Tolerance mm	: <b>-</b> 0.10
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm	: 550
Pressure hPa	: 1150
rack travel mm	: 12.30
Tolerance mm	: <b>←</b> 0.05
Pressure hPa	: -
Rated speed rpm	550
rack travel mm	: 9.45
Tolerance mm	: <b>←</b> 0.10
MCAGURENCAT	
MEASUREMENT	
Rated speed rpm	: 550
Pressure hPa	: 800
rack travel mm Tolerance mm	: 11.80 : ← 0.05
Office this	. — 0.03
Pressure hPa	: 670
rack travel mm	: 10.35
Tolerance mm	: + 0.10
Start interlock	
FUEL DELIVERY CHA	ARACTERISTICS
Aneroid pressure	
hPa	: 1150
Rated speed rpm	: 500
Del. quantity	
cm3/1000 strokes	: 203.0
Tolerance	20
cm3/1000 strokes Check tolerance	: + 2.0
cm3/1000s.	: + 5.0
Aneroid pressure	. 1150
hPa Rated speed rpm	: 1150 : 700
Del. quantity	. 100
cm3/1000 strokes	: 196.0
Tolerance	· · ·
cm3/1000 strokes	: <del>-</del> 2.0
Check tolerance cm3/1000s.	: +- 5.0
LIBO/ ICENIO.	. <del></del> ).U

Aneroid pressure Rated speed rpm : 550 Del. quantity cm3/1000 strokes : 143.0 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : **←** 3.5 STARTING FUEL DELIVERY Rated speed rpm 100 rack travel mm 20.50 Tolerance mm : +- 0.50 Del. quantity cm3/1000 strokes : 145.0 Tolerance cm3/1000 strokes :  $\leftarrow$  10.0 Check tolerance cm3/1000s. : **←** 14.0 LOW IDLE Rated speed rpm : 400 Del. quantity cm3/1000 strokes : 30.0 Tolerance cm3/1000 strokes : +-3.0 Check tolerance cm3/1000s. 5.5 Spreed Tolerance cm3/1000 strokes : 4.5 Check tolerance cm3/1000s. 7.5

### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 21.01.97 Test oil : ISO 4113

Combination No. : 0 402 076 748H

Injection pump

Pump designation : PES6P110A720RS3305

EP type number : 0 412 016 742

Governor

Governer design. : RSV300...1100P1A555

Governer no. : 0 421 833 379

Cust. part No. : 9271056

Customer-spec, information

Customer : LIEBHERR : D 926 TI-E A2 Motor

Power KW : 172.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C Tolerance °C : +- 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Overflow quantity

min. L/h : 130 Tolerance l/h : + 10.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 207.5 bar Tolerance bar : + 1.5 Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar: 26.0 Tolerance bar : +- 1.0

Prestroke mm : 3.20 Tolerance mm : ← 0.05

Check

tolerance mm : **←** 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

: 0-60-120-180-240 : +- 0.30 Phasing

Tolerance

Check

tolerance °NW : ← 0.50

Start of delivery mark

Barrel no. : 1

### BASIC SETTING

900 Rated speed rpm :

Rack travel in mm: 10.95 Tolerance mm :  $\leftarrow$  0.05

Del. quantity cm3/1000 strokes : 161.0	† Tolerance + cm3/1900 strokes : 4.0
CMS/1000 SEPORES : 101.0	- Check tolerance
Tolerance cm3/1000 strokes : +- 1.0	cm3/1000s. : 7.5
Check tolerance cm3/1000s. : +- 3.5	CONTROL LEVER
Spreed	control lever
Tolerance cm3/1000 strokes : 4.0	position degree : 98.0 tolerance degree : + 4.0 RATED SPEED
Check tolerance cm3/1000s. 7.5	rack travel mm : 9.95 Rated speed rpm : 935 Tolerance 1/min : +- 5
Rated speed rpm : 400	rack travel mm : 4.00 Rated speed rpm : 975 Tolerance 1/min : + 15
Rack travel in mm: 4.90 Tolerance mm: + 0.10 Del. quantity	rack travel mm : 4.00 Rated speed rpm : 985
cm3/1000 strokes : 36.0 Tolerance cm3/1000 strokes : +- 3.0	‡
Check tolerance cm3/1000s. : + 5.5 Spreed	LOW IDLE
Tolerance cm3/1000 strokes : 4.5 Check tolerance	control lever position degree : 74.0
cm3/1000s. : 7.5	tolerance degree : +- 4.0
(B) SETTING OF INJECTION PUMP	Setting point w/out bumper spring
WITH GOVERNOR	Rated speed rpm : 400 rack travel mm : 4.40 Tolerance mm : + 0.10
GUIDE SLEEVE POSITION	Testing:
control lever position degree : - 3	Rated speed rpm : 400 rack travel mm : 4.90 Tolerance mm : + 0.10
FULL LOAD DELIVERY AT FULL LOAD STOP	TORQUE CONTROL
Rated speed rpm : 900 Aneroid pressure hPa : 1050	Rated speed rpm : 900 rack travel mm : 10.95 Tolerance mm : + 0.05
Del. quantity cm3/1000 strokes : 161.0 Tolerance	Rated speed rpm : 500 rack travel mm : 10.95 Tolerance mm : + 0.10
cm3/1000 strokes : \( \tau \) 1.0 Check tolerance cm3/1000S. : \( \tau \) 3.5	Rated speed rpm : 700
Spreed	+ rack travel mm : 10.95

rolerance mm	: +~ 0.3ů	+	Del. quantity	
		+	cm3/1000 strokes	: 159.0
ANEDOTO / AL TITUDE		<del> †</del>	Tolerance	10
ANEROID/ALTITUDE COMPENSATOR TEST		Ī	cm3/1000 strokes Check tolerance	: +- 1.0
COLUMN ENTONY ON TEOT		1		: + 3.5
		+		
SETTING		İ		
Rated speed rpm	: 550	Į	STARTING FUEL DEL	IVERY
Pressure hPa	: 1050	+		
rack travel mm	: 10.95	†	Rated speed rpm	: 100
Tolerance mm	: +- 0.05	Ī	rack travel mm Tolerance mm	
Pressure hPa	: -	Ţ	Del. quantity	. +- 0.50
Rated speed rpm	: 550	+	cm3/1000 strokes	: 155.0
rack travel mm		†	Tolerance	. 40.0
Tolerance mm	: + 0.10	1	cm3/1000 strokes Check tolerance	: + 10.0
MEASUREMENT		Į	cm3/1000s.	: +- 14.0
		+		
Rated speed rpm	: 550	<u>†</u>		
Pressure hPa	: 640	Į		
rack travel mm	: 10.70	+	LOW IDLE	
Tolerance mm	: <del>+-</del> 0.05	+		400
Pressure hPa	: 590	1	Rated speed rpm Del. quantity	: 400
rack travel mm	: 10.20	Ţ	cm3/1000 strokes	: 36.0
Tolerance mm	: + 0.10	<del>}</del>	Tolerance	
		+	cm3/1000 strokes	: ← 3.0
Start interlock		†	Check tolerance cm3/100Gs.	: +- 5.5
		I	Spreed	, +- ),)
		<del></del> +	Tolerance	
FUEL DELIVERY CHA	ARACTERISTICS	+	cm3/1000 strokes	: 4.5
Aneroid pressure		1	Check tolerance cm3/1000s.	: 7.5
hPa	: 1080	I	Chorteons.	. ,,,
Rated speed rpm		+		
Del. quantity	404.0	+		
cm3/1000 strokes Tolerance	: 181.0	İ		
cm3/1000 strokes	: + 2.0	Ţ	End of test speci	fication sheet
Check tolerance		+		
cm3/1000s.	: <b>←</b> 5.0	†		
Aneroid pressure		Ī		
hPa	: 1080	1		
Rated speed rpm	: 700	+		
Del. quantity	. 175 0	†		
cm3/1000 strokes Tolerance	: 175.0	Ī		
tm3/1000 strokes	: +- 2.0	+		
Check tolerance		+		
cm3/1000s.	: +- 5.0	†		
Aneroid pressure		I		
hPa	: -	+		
Rated speed rpm	: 500	+		

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.01.97 Test oil : ISO 4113

Combination No. : 0 402 076 748I

Injection pump

Pump designation : PES6P110A720RS3305 EP type number : 0 412 016 742

Governor

Governer design. : RSV300...1100P1A555

Governer no. : 0 421 833 379

Cust. part No. : 9271056

Customer—spec. information Customer : LIEBHERR

Motor : D 926 TI-E A2

Power KW : 210.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp.  $^{\circ}$ C : 40 Tolerance  $^{\circ}$ C :  $\leftarrow$  2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Overflow quantity

min. l/h : 130 Tolerance l/h : + 10.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 207.5 Tolerance bar : ← 1.5 Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

Tolerance : +- 0.30

Check

tolerance \*NW : + 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.00 Tolerance mm : + 0.05

oterance mm : + U.U3

Del. quantity	† Tolerance
cm3/1000 strokes : 183.0	+ cm3/1000 strokes : 4.0
	+ Check tolerance
Tolerance	+ cm3/1000s. : 7.5
$cm3/1000$ strokes : $\leftarrow$ 1.0	+
	+
Check tolerance	
$cm3/1000s$ . : $\leftarrow$ 3.5	+ CONTROL LEVER
Consol	†
Spreed	t control lever
Talanana	position degree : 108.0
Tolerance	tolerance degree : + 4.0
cm3/1000 strokes : 4.0	DATED COSED
Check tolerance	+ RATED SPEED
	rack travel mm : 12.00
cm3/1000s. : 7.5	+ Rated speed rpm : 1030
	+ Tolerance 1/min : + 5
	rack travel mm : 4.00
Rated speed rpm : 400	
Rated speed rpm : 400	+ Rated speed rpm : 1100
Rack travel in mm : 4.90	† Tolerance 1/min : ← 15
Tolerance mm : + 0.10	rack travel mm : 4.00
Del. quantity	
cm3/1000 strokes : 36.0	+ Rated speed rpm : 1100
Tolerance	Ť
cm3/1000 strokes : + 3.0	Ť
Check tolerance	Ť
cm3/1000s. : + 5.5	LOU TOLE
	+ LOW IDLE
Spreed	Ť
Tolerance	†
cm3/1000 strokes : 4.5	+ control lever
Check tolerance	position degree : 79.0
cm3/1000s. : 7.5	tolerance degree : + 4.0
	Cotting soint work human anning
(B) SETTING OF INJECTION PUMP	Setting point w/out bumper spring
WITH GOVERNOR	Rated speed rpm : 400
MILL GOVERNOR	
	+ rack travel mm : 4.40 + Tolerance mm : +- 0.10
	Toterance mm : += 0.10
GUIDE SLEEVE POSITION	Testing:
TTOTE VESETS (VV414VII	toothig.
	Rated speed rpm : 400
control lever	+ rack travel mm : 4.90
position degree : - 3	+ Tolerance mm : +- 0.10
provident magnets to the	10001 01100 11111
	+
FULL LOAD DELIVERY AT FULL LOAD STOP	+ TORQUE CONTROL
	+
Rated speed rpm : 1000	+ Rated speed rpm : 1000
Aneroid pressure	+ rack travel mm : 13.00
hPa : 1080	+ Tolerance mm : ← 0.05
Del. quantity	+
cm3/1000 strokes : 183.0	+ Rated speed rpm : 500
Tolerance	+ rack travel mm : 13.00
cm3/1000 strokes : + 1.0	† Tolerance mm : + 0.10
Check tolerance	+
cm3/1000s. : +- 3.5	+ Rated speed rpm : 700
Spreed	+ rack travel mm : 13.00
spreed	T Tack Clavet min . 15.00

Tolerance mm	: <b>←</b> 0.30	+ Del. quantity - cm3/1000 strokes : 175.0
ANEROID/ALTITUDE COMPENSATOR TEST		<pre>+ Tolerance + cm3/1000 strokes : +- 1.0 + Check tolerance</pre>
		cm3/1000s. : +- 3.5
SETTING		+
Rated speed rpm Pressure hPa	: 1080	STARTING FUEL DELIVERY
rack travel mm Tolerance mm		+ Rated speed rpm : 100 + rack travel mm : 20.50
Pressure hPa	· -	Tolerance mm : + 0.50
Rated speed rpm	•	+ Del. quantity + cm3/1000 strokes : 155.0
rack travel mm	: 11.50	+ Tolerance
Tolerance mm	: +- 0.10	+ cm3/1000 strokes : +- 10.0
MEASUREMENT		+ Check tolerance - cm3/1000s. : + 14.0
Rated speed rpm	: 550	<del>-</del>
Pressure hPa	: 775	
rack travel mm		+ LOW IDLE
Tolerance mm	: <b>←</b> 0.05	Rated speed rpm : 400
Pressure hPa	: 705	+ Del. quantity
rack travel mm	: 11.80	+ cm3/1000 strokes : 36.0
Tolerance mm	: 0.10	† Tolerance
Start interlock		+ cm3/1000 strokes : + 3.0 + Check tolerance
ordic micer tock		- cm3/1000s. : +- 5.5
		Spreed
FUEL DELIVERY CHA		+ Tolerance
FUEL DELIVERY CHA	ARACTERISTICS	Tolerance cm3/1000 strokes : 4.5
FUEL DELIVERY CHA		+ Tolerance
Aneroid pressure	: 1080	Tolerance cm3/1000 strokes : 4.5 Check tolerance
Aneroid pressure hPa Rated speed rpm		Tolerance cm3/1000 strokes : 4.5 Check tolerance
Aneroid pressure	: 1080	Tolerance cm3/1000 strokes : 4.5 Check tolerance
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance	: 1080 : 500 : 203.0	Tolerance cm3/1000 strokes : 4.5 Check tolerance cm3/1000s. : 7.5
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 1080 : 500	Tolerance cm3/1000 strokes : 4.5 Check tolerance
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	: 1080 : 500 : 203.0 : ← 2.0	Tolerance cm3/1000 strokes : 4.5 Check tolerance cm3/1000s. : 7.5
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 1080 : 500 : 203.0	Tolerance cm3/1000 strokes : 4.5 Check tolerance cm3/1000s. : 7.5
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Aneroid pressure	: 1080 : 500 : 203.0 : ← 2.0 : ← 5.0	Tolerance cm3/1000 strokes : 4.5 Check tolerance cm3/1000s. : 7.5
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure hPa	: 1080 : 500 : 203.0 : ← 2.0 : ← 5.0	Tolerance cm3/1000 strokes : 4.5 Check tolerance cm3/1000s. : 7.5
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure hPa Rated speed rpm	: 1080 : 500 : 203.0 : ← 2.0 : ← 5.0	Tolerance cm3/1000 strokes : 4.5 Check tolerance cm3/1000s. : 7.5
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure hPa Rated speed rpm Del. quantity	: 1080 : 500 : 203.0 : ← 2.0 : ← 5.0 : 1080 : 700	Tolerance cm3/1000 strokes : 4.5 Check tolerance cm3/1000s. : 7.5
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance	: 1080 : 500 : 203.0 : ← 2.0 : ← 5.0	Tolerance cm3/1000 strokes : 4.5 Check tolerance cm3/1000s. : 7.5
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 1080 : 500 : 203.0 : ← 2.0 : ← 5.0 : 1080 : 700	Tolerance cm3/1000 strokes : 4.5 Check tolerance cm3/1000s. : 7.5
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000strokes Check tolerance cm3/1000s.  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	: 1080 : 500 : 203.0 : + 2.0 : + 5.0 : 1080 : 700 : 194.0 : + 2.0	Tolerance cm3/1000 strokes : 4.5 Check tolerance cm3/1000s. : 7.5
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 1080 : 500 : 203.0 : ← 2.0 : ← 5.0 : 1080 : 700 : 194.0	Tolerance cm3/1000 strokes : 4.5 Check tolerance cm3/1000s. : 7.5
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000strokes Check tolerance cm3/1000s.  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	: 1080 : 500 : 203.0 : + 2.0 : + 5.0 : 1080 : 700 : 194.0 : + 2.0	Tolerance cm3/1000 strokes : 4.5 Check tolerance cm3/1000s. : 7.5
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s.  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 1080 : 500 : 203.0 : + 2.0 : + 5.0 : 1080 : 700 : 194.0 : + 2.0	Tolerance cm3/1000 strokes : 4.5 Check tolerance cm3/1000s. : 7.5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil : 21.01.97 : ISO 4113

Combination No. : 0 402 076 748K

Injection pump

Pump designation : PES6P110A720RS3305

EP type number : 0 412 016 742

Governor

Governer design. : RSV300...1100P1A555

Governer no. : 0 421 833 379

Cust. part No. : 9271056

Customer-spec. information

Customer : LIEBHERR

Motor

: D 926 TI-E A2

Power KW

: 195.0

### TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C

40

Tolerance °C

: +- 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Overflow quantity

min. L/h : 130 Tolerance L/h : +- 10.0

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

: 207.5

Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter :

2.0

x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar: 26.0 Tolerance bar :  $\leftarrow$  1.0

Prestroke mm : 3.20 Tolerance mm : + 0.05

neck

: +- 0.10 terance mm

k travel in mm : 10.50 erance mm : + 1.50

F' g order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing Tolerance

: +- 0.30

Check

tolerance  $^{\circ}NW$  : +- 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm :

1000

Rack travel in mm : 11.00

Tolerance mm :  $\leftarrow$  0.05

Del. quantity cm3/1000 strokes : 163.0	- Tolerance - cm3/1000 strokes : 4.0 - Check tolerance
Tolerance cm3/1000 strokes : +- 1.0	- cm3/1000s. : 7.5
Check tolerance cm3/1000s. : +- 3.5	- CONTROL LEVER
Spreed	- control lever
Tolerance +	position degree : 108.0 tolerance degree : + 4.0
cm3/1000 strokes : 4.0	RATED SPEED
Check tolerance cm3/1000s. : 7.5	rack travel mm : 10.00 Rated speed rpm : 1025 Tolerance 1/min : +- 5
Rated speed rpm : 400	- rack travel mm : 4.00 - Rated speed rpm : 1090
	Tolerance 1/min : +- 15
Rack travel in mm: 4.90 Tolerance mm: + 0.10	rack travel mm : 4.00
Del. quantity cm3/1000 strokes : 36.0	Rated speed rpm : 1100
Tolerance cm3/1000 strokes : + 3.0	•
Check tolerance cm3/1000s. : + 5.5	LOW IDLE
Spreed + Tolerance +	•
cm3/1000 strokes : 4.5	control lever
Check tolerance + 7.5 +	position degree : 79.0 tolerance degree : +- 4.0
(B) SETTING OF INJECTION PUMP	Setting point w/out bumper spring
WITH GOVERNOR	Rated speed rpm : 400
†	rack travel mm : 4.40 Tolerance mm : +- 0.10
	Tolerance mm : +- 0.10
GUIDE SLEEVE POSITION	Testing:
+	Rated speed rpm : 400
control lever + position degree : - 3 +	rack travel mm : 4.90 Tolerance mm : +- 0.10
position degree . 3	. See and the same
FULL LOAD DELIVERY AT FULL LOAD STOP	TORQUE CONTROL
Rated speed rpm : 1000	Rated speed rpm : 1000
Aneroid pressure	rack travel mm : 11.00
hPa : 1080 +	Tolerance mm : +- 0.05
cm3/1000 strokes : 163.0 +	Rated speed rpm : 500
Tolerance + 1.0 + 1.0 + 1.0	rack travel mm : 11.00 Tolerance mm : +- 0.10
Check tolerance	
cm3/1000s. : +- 3.5 Spreed	Rated speed rpm : 700 rack travel mm : 11.00

Tolerance mm	: <b>←</b> 0.30	Del. quantity cm3/1000 strokes : 167.0 Tolerance
ANEROID/ALTITUDE COMPENSATOR TEST		cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 3.5
SETTING		Ť
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 1080 : 11.00	STARTING FUEL DELIVERY  Rated speed rpm : 100 rack travel mm : 20.50
Pressure hPa Rated speed rpm rack travel mm Tolerance mm MEASUREMENT	: - : 500 : 10.00 : ← 0.10	Tolerance mm : + 0.50  Del. quantity  cm3/1000 strokes : 145.0  Tolerance  cm3/1000 strokes : + 10.0  Check tolerance  cm3/1000s. : + 14.0
Rated speed rpm	: 500	‡
Pressure hPa rack travel mm Tolerance mm	: 630 : 10.80 : ← 0.05	LOW IDLE
Pressure hPa rack travel mm Tolerance mm	: 590 : 10.30 : ← 0.10	Rated speed rpm : 400 Del. quantity cm3/1000 strokes : 36.0 Tolerance cm3/1000 strokes : + 3.0
Start interlock		Check tolerance cm3/1000s. : + 5.5 Spreed Tolerance cm3/1000 strokes : 4.5
Aneroid pressure hPa Rated speed rpm Del. quantity	: 1080 : 500	- cm3/1000 strokes : 4.5 - Check tolerance - cm3/1000s. : 7.5
cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 188.0 : ← 2.0 : ← 5.0	End of test specification sheet
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 1080 : 700 : 178.0 : ← 2.0	† † † † †
Check tolerance cm3/1000s.	: ← 5.0	<del>+</del>
Aneroid pressure hPa Rated speed rpm	: - : 500	‡

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.01.97 Test oil : ISO 4113

Combination No. : 0 402 646 665

Injection pump

Pump designation : PE6P130A720RS7354 EP type number : 0 412 636 835

Governor

Governer design. : RGV300...950PA1002

K

Governer no. : 0 421 815 491

Cust. part No.

Customer-spec. information

Customer : IVECO-FRANCE : 8210.42K.3000

### TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40 Tolerance °C : + 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : +- 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 1000

#### REMARKS

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant.

per values \_\_\_\_

### BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 5.05
Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 12.00 Tolerance mm : + 0.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

Tolerance :  $\leftarrow$  0.30

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.50

Start of delivery mark

Check

tolerance °NW : + 0.40

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 11.95
Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 242.0

Tolerance

cm3/1000 strokes : +- 1.0

	+	Tolerance mm : +- 0.50
Check tolerance cm3/1000s.	: <del>+</del> 4.0	
Spreed		GUIDE SLEEVE POSITION
Tolerance	<b>‡</b>	control lever
cm3/1900 strokes	: 5,0	position degree : - 1 Rated speed rpm : 1190
Check tolerance cm3/1000s.	: 9.0	Rack travel in mm : 11.00
		Tolerance mm : +- 2.70
Rated speed rpm	: 275	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm		Rated speed rpm : 950
Tolerance mm Dol. quantity	: ← 0.10	Aneroid pressure hPa : 1000
cm3/1000 strokes	: 32.0	Del. quantity
Tolerance	+	cm3/1000 strokes : 242.0
cm3/1000 strokes Check tolerance	: +- 3.0 +	Tolerance cm3/1000 strokes : +- 1.0
cm3/1000s.	: ← 6.0	Check tolerance
Spreed	+	$cm3/1000s.$ : $\leftarrow$ 4.0
Tolerance cm3/1000 strokes	: 8.0	Spreed
Check tolerance	: 0.0	Tolerance cm3/1000 strokes : 5.0
cm3/1000s.	: 12.0	Check tolerance cm3/1000s. 9.0
(B) SETTING OF IN WITH GOVERNOR	NJECTION PUMP +	CONTROL LEVER
GUIDE SLEEVE TRAN	VEL +	control lever
Cabad amand ass	1035	position degree : 114.0
Rated speed rom guide sleeve	: 1025	tolerance degree : +- 4.0
travel mm	: 9.00	RATED SPEED
Tolerance mm	: +- 0.15	rack travel mm : 10.90
Rated speed rpm	: 300	Rated speed rpm : 1010 Tolerance 1/min : +- 5
guide sleeve	+	Check
travel mm Tolerance mm	: 1.64 : + 0.20	speed $1/\min$ : $\leftarrow$ 10
roterance mm	: — 0.20	rack travel mm : 4.00
Rated speed rpm	: 764	Rated speed rpm : 1110
guide sleeve travel mm	: 6.22	Tolerance 1/min : ← 15 Check
Tolerance mm	: + 0.25	speed 1/min : +- 20
Rated speed rpm	: 500	rack travel mm : 0.50
guide sleeve	: 3.78	Tolerance mm : +- 0.50
travel mm Tolerance mm	: + 0.25	Rated speed rpm : 1250
Rated speed rpm	: 1330	
guide sleeve	* * * *	
travel mm	: 13.50	LOW IDLE

		†	Tolerance mm	: +- 0.20
control lever		I	Pressure hPa	. 500
position degree	• 69.0	I	rack travel mm	
tolerance degree		1	Tolerance mm	: +- 0.05
total dille deglee	• • •••	1	TOCCI GITCC HAIF	. • 0.05
Testing:		+	Start interlock	
0 ***		†		422
Rated speed rpm	: 2/5	†	Rated speed rpm	
rack travel mm Tolerance mm	: 5.30 : + 0.10	†	Rated speed rpm	: < 220
rocerance mm	: +- 0.10	†	Check	
Rated speed rpm	: 200	I	speed 1/min	: > 160
nated speed (piii	. 200	I	Check	. > 100
CRT mm min.	: > 6.20	1	speed 1/min	: < 240
		. +		
Rated speed rpm	: 355	+		
		†	FUEL DELIVERY CHA	ARACTERISTICS
TORQUE CONTROL		<u> </u>	Anaroid procesure	
LOUGOE COMINOL		I	Aneroid pressure	: 1000
Rated speed rpm	; 950	I	Rated speed rpm	
rack travel mm		I	Del. quantity	. 550
Tolerance mm	÷ 0.05	I	cm3/1000 strokes	• 262 0
	0.05	1	Tolerarice	. 202.0
Rated speed rpm	: 700	1	cm3/1000 strokes	· +- 3.0
rack travel mm	: 11.75	1	Check tolerance	
Tolerance mm	: +- 0.10	1	cm3/1000s.	: +- 6.0
		+		
Rated speed rpm		+	Aneroid pressure	
rack travel mm		+	hPa	: -
Tolerance mm	: <del>+-</del> 0.10	+	Rated speed rpm	: 550
<b>~</b>	700	†	Del. quantity	.=
Rated speed rpm		†	cm3/1000 strokes	: 173.0
rack travel mm	: 10.80	†	Tolerance	
Tolerance mm	: +- 0.30	†	cm3/1000 strokes	: +- 1.0
		†	Check tolerance	
AMEROTA /AL TITURE			cm3/1000s.	: ← 4.0
ANEROID/ALTITUDE		Ť		
COMPENSATOR TEST		I		
		Ţ	STARTING FUEL DEL	IVERY
SETTING		+		
		+	Rated speed rpm	
Rated speed rpm	: 950	+	rack travel mm	: 20.25
Pressure hPa	: 1000	+	Tolerance mm	: +- 0.75
rack travel mm	: 11.95	†	Del. quantity	
Tolerance mm	: <b>+</b> 0.05	†	cm3/1000 strokes	: 160.0
Pressure hPa	•	†	Tolerance	
Rated speed rpm	950	†	cm3/1000 strokes Check tolerance	: +- 15.0
rack travel mm	: 950 : გ.40	Ť	cm3/1000s.	: +- 19.0
Tolerance mm	: +- 0.40	Ī	CIII37 10003.	: +- 19.0
Toter ance min	. ** 0.40	I		
MEASUREMENT		1		
= ··· · · · · · · · · · · · · · · · · ·		+		
Rated speed rpm	: 950	+	LOW IDLE	
	. 200	t		075
Pressure hPa	: 290	†	Rated speed rpm	: 275
rack travel mm	: 9.35	+		

Del. quantity cm3/1000 strokes	:	32.0
Tolerance cm3/1000 strokes	: +-	3.0
Check tolerance cm3/1000s.	: +-	6.0
Spreed Tolerance		
cm3/1000 strokes Check tolerance	:	8.0
cm3/1000s.	:	12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.01.97 Test oil : ISO 4113

Combination No. : 0 402 646 742

Injection pump

Pump designation : PE6P120A320LS7837-2

EP type number : 0 412 626 943

Governor

Governer design. : RQ300/1100PA1272 Governer no. : 0 421 801 804

Cust. part No. : 0270743002

Customer-spec. information Customer : MB-NFZ Motor : 0M441 LA Power KW : 228.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp.  $^{\circ}$ C :  Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity

min. l/h : 120 Tolerance l/h : +- 20.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 1000

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 20.50 Tolerance mm : + 0.50

Firing order : 6-3-5-2-4-

: 1

Phasing : 0-60-120-180-240

Tolerance : +- 0.30

Check

tolerance \*NW : +- 0.50

Start of delivery mark

Tolerance :  $\leftarrow$  0.10

Check

tolerance \*NW : + 0.75

Barrel no. : 6

# CRT ZERO POSITION

Rack travel in mm : 12.60 Tolerance mm : +- 0.05

	†	Tolerance mm : +	- 0.20
BASIC SETTING	<del></del> ‡		1100
	+	guide sleeve	
Rated speed rpm :	600	travel mm :	6.00
		Tolerance mm : +	- 0.10
Rack travel in mm :	12.60	Rated speed rpm :	429
Tolerance mm : +-		guide sleeve	,
	+		4.97
Del. quantity	+		- 0.10
	191.0		
	<del> </del>	Rated speed rpm :	550
Tolerance	+	guide sleeve	
cm3/1000 strokes : +-	- 1.0	travel mm :	6.00
	+		- 0.10
Check tolerance	+		
cm3/1000s. : +-	- 4.0 +	Rated speed rpm :	1340
	+	guide sleeve	
Spreed	+		11.50
	+	Tolerance mm : +	- 0.50
Tolerance	+		
cm3/1000 strokes :	6.0		
	+	GUIDE SLEEVE POSITION	1
Check tolerance	+		
cm3/1000s. :	9.0		
	+	control lever	
	†	position degree :	109
	+	Rated speed rpm :	650
Rated speed rpm :	300 +		
	+	Rack travel in mm :	
Rack travel in mm :		Tolerance mm : +	- 0.80
	- 0.10		
Del quantity	†		
cm3/1000 strokes :	16.0	FULL LOAD DELIVERY AT	FULL LOAD STOP
Tolerance	7.0	- · · · ·	/ <b>**</b>
cm3/1000 strokes : +-	- 3.0 +	Rated speed rpm :	600
Check tolerance	† 1	Aneroid pressure	400
cm3/1000s. : +-	- 6.0 +	hPa :	600
Spreed	†	Del. quantity	404 0
Tolerance	<b>1</b>	cm3/1000 strokes :	191.0
cm3/1000 strokes :	6.0	Tolerance	4.0
Check tolerance	10.0	cm3/1000 strokes : +	- 1.0
cm3/1900s. :	10.0	Check tolerance	/ . 0
	†	cm3/1000s. : +	- 4.0
(B) SETTING OF INJECTI	TON BLIMB	Spreed Toler <b>an</b> ce	
WITH GOVERNOR	LON FOMP	cm3/1000 strokes :	6.0
WITH GOVERNOR	Ť		0.0
		Check tolerance	0.0
CHINE SLEEVE TOAVEL	T	cm3/1000s. :	9.0
GUIDE SLEEVE TRAVEL	Ť		
Poted speed nos	1146		
Rated speed rpm : guide sleeve	1 7	CONTROL LEVER	
travel mm :	6.54	CONTROL LEVER	
Tolerance mm : +-		control lever	
roterance um	<del>- 0.13</del> †		0/. 0
Dated aread are	700	position degree :	
Rated speed rpm :	300	tolerance degree : +	- 4.0
guide steeve	2 2/	DATED CDEEN	
travel mm :	2.24	RATED SPEED	

rack travel mm Rated speed rpm	: 1150	+ 2-stage LDA sett	ring
Tolerance 1/min	; <b>←</b> 5	†	
Check		+ Rated speed rpm	: 400
speed 1/min	: +- 13	+ Pressure hPa	: 600
	_	+	
rack travel mm		+ MEASUREMENT	
Rated speed rpm		+	
Tolerance 1/min	: <b>←</b> 15	+ Pressure hPa	: 350
Check		+ rack travel mm	: -0.80
speed 1/min	: +- 20	+ Tolerance mm	: <b>←</b> 0.15
		+	
rack travel mm	: 0.75	+ Pressure hPa	: 200
Tolerance mm	: +- 0.75	+ rack travel mm	: -2.00
Rated speed rpm	: 1350	+ Tolerance mm	: ← 0.20
		. +	
		+ Pressure hPa	: 975
		+ rack travel mm	: 0.50
			: ← 0.05
LOW IDLE		†	
		† Start interlock	
		†	
control lever	70.0	+ Rated speed rpm	
position degree		+ Rated speed rpm	: < 220
tolerance degree	: ← 4.0	†	
		+ Check	
Testing:		+ speed 1/min	: > 80
	700	Check	
Rated speed rpm		+ speed 1/min	: < 240
rack travel mm	: 5.60	†	
Tolerance mm	: <del></del> 0.10	5151 051 51501	
		+ FUEL DELIVERY CH	IADACTEDISTICS
most description	. 2.00		MARCIERISTICS
rack travel mm		+	
Rated speed rpm	: 400	Aneroid pressure	<b>!</b>
	: 400	Aneroid pressure hPa	: : 1500
Rated speed rpm Tolerance 1/min	: +400 : + 20	Aneroid pressure hPa Rated speed rpm	: : 1500
Rated speed rpm	: +400 : + 20	+ Aneroid pressure + hPa + Rated speed rpm + Del. quantity	: 1500 : 1100
Rated speed rpm Tolerance 1/min Rated speed rpm	: ← 400 : ← 20 : 200	Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes	: 1500 : 1100
Rated speed rpm Tolerance 1/min	: +400 : + 20	Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance	: 1500 : 1100 : 214.0
Rated speed rpm Tolerance 1/min Rated speed rpm	: ← 400 : ← 20 : 200	Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: : 1500 : 1100 : : 214.0 : : ← 1.5
Rated speed rpm Tolerance 1/min Rated speed rpm CRT mm min.	: ← 400 : ← 20 : 200	Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	: : 1500 : 1100 : : 214.0 : : ← 1.5
Rated speed rpm Tolerance 1/min Rated speed rpm	: ← 400 : ← 20 : 200	Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: : 1500 : 1100 : : 214.0 : : ← 1.5
Rated speed rpm Tolerance 1/min Rated speed rpm CRT mm min. TORQUE CONTROL	: ← 400 : ← 20 : 200 : > 9.00	Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed	: : 1500 : 1100 : : 214.0 : : ← 1.5
Rated speed rpm Tolerance 1/min Rated speed rpm CRT mm min. TORQUE CONTROL Rated speed rpm	: ← 400 : ← 20 : 200 : > 9.00 : 600	Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance	: 1500 : 1100 : 214.0 : ← 1.5 : ← 4.5
Rated speed rpm Tolerance 1/min Rated speed rpm CRT mm min. TORQUE CONTROL Rated speed rpm rack travel mm	:	Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes	: 1500 : 1100 : 214.0 : ← 1.5 : ← 4.5
Rated speed rpm Tolerance 1/min Rated speed rpm CRT mm min. TORQUE CONTROL Rated speed rpm	: ← 400 : ← 20 : 200 : > 9.00 : 600	Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance	: 1500 : 1100 : 214.0 : ← 1.5 : ← 4.5
Rated speed rpm Tolerance 1/min Rated speed rpm CRT mm min.  TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	:	Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes	: 1500 : 1100 : 214.0 : ← 1.5 : ← 4.5
Rated speed rpm Tolerance 1/min Rated speed rpm CRT mm min.  TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm Rated speed rpm	:	Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 1500 : 1100 : 214.0 : : ← 1.5 : ← 4.5 : 8.0 : 12.0
Rated speed rpm Tolerance 1/min Rated speed rpm CRT mm min.  TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm Rated speed rpm rack travel mm	:	Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance	: 1500 : 1100 : 214.0 : : ← 1.5 : ← 4.5 : : 8.0 : 12.0
Rated speed rpm Tolerance 1/min Rated speed rpm CRT mm min.  TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm Rated speed rpm	:	Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Aneroid pressure hPa	: 1500 : 1100 : 214.0 : : ← 1.5 : ← 4.5 : 8.0 : 12.0
Rated speed rpm Tolerance 1/min Rated speed rpm CRT mm min.  TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm Rated speed rpm rack travel mm Tolerance mm	:	Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000s. Aneroid pressure hPa Rated speed rpm	: 1500 : 1100 : 214.0 : : ← 1.5 : ← 4.5 : 8.0 : 12.0
Rated speed rpm Tolerance 1/min Rated speed rpm CRT mm min.  TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm Rated speed rpm rack travel mm	:	Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Aneroid pressure hPa	: 1500 : 1100 : 214.0 : : 1.5 : + 4.5 : 8.0 : 12.0 : 1500 : 700
Rated speed rpm Tolerance 1/min Rated speed rpm CRT mm min.  TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm Rated speed rpm rack travel mm Tolerance mm Rated speed rpm Rated speed rpm Rated speed rpm Rated speed rpm	:	Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000s. Aneroid pressure hPa Rated speed rpm Del. quantity	: 1500 : 1100 : 214.0 : : 1.5 : + 4.5 : 8.0 : 12.0 : 1500 : 700
Rated speed rpm Tolerance 1/min Rated speed rpm CRT mm min.  TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm Rated speed rpm rack travel mm Tolerance mm Rated speed rpm rack travel mm Tolerance mm	:	Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000s. Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes	: 1500 : 1100 : 214.0 : ← 1.5 : ← 4.5 : 8.0 : 12.0 : 1500 : 700 : 216.0
Rated speed rpm Tolerance 1/min Rated speed rpm CRT mm min.  TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm Rated speed rpm rack travel mm Tolerance mm Rated speed rpm rack travel mm Tolerance mm	:	Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Tolerance cm3/1000 strokes Tolerance cm3/1000 strokes	: 1500 : 1100 : 214.0 : : 1.5 : + 4.5 : 8.0 : 12.0 : 1500 : 700 : 216.0 : : 3.0
Rated speed rpm Tolerance 1/min Rated speed rpm CRT mm min.  TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm Rated speed rpm rack travel mm Tolerance mm Rated speed rpm rack travel mm Tolerance mm	:	Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 1500 : 1100 : 214.0 : : 1.5 : + 4.5 : 8.0 : 12.0 : 1500 : 700 : 216.0 : : 3.0
Rated speed rpm Tolerance 1/min Rated speed rpm CRT mm min.  TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm Rated speed rpm rack travel mm Tolerance mm Rated speed rpm rack travel mm Tolerance mm	:	Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 1500 : 1100 : 214.0 : : + 1.5 : + 4.5 : : 8.0 : 12.0 : 1500 : 700 : 216.0 : : + 3.0 : + 6.0
Rated speed rpm Tolerance 1/min Rated speed rpm CRT mm min.  TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm Rated speed rpm rack travel mm Tolerance mm Rated speed rpm rack travel mm Tolerance mm ANEROID/ALTITUDE	:	Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Tolerance cm3/1000 strokes Tolerance cm3/1000 strokes	: 1500 : 1100 : 214.0 : : + 1.5 : + 4.5 : : 8.0 : 12.0 : 1500 : 700 : 216.0 : : + 3.0 : + 6.0

400 Rated speed rpm : Del. quantity cm3/1000 strokes : 158.0 Tolerance cm3/1000 strokes : +-1.0 Check tolerance cm3/1000s. 4.0 Aneroid pressure hPa 500 Rated speed rpm Del. quantity cm3/1000 strokes : 145.0 Tolerance cm3/1000 strokes 1.0 Check tolerance cm3/1000s. 4.0 STARTING FUEL DELIVERY Rated speed rpm 100 Del. quantity cm3/1000 strokes : 205.0 Tolerance cm3/1000 strokes : **←** 15.0 Check tolerance cm3/1000s. : +- 19.0 LOW IDLE Rated speed rpm 300 Del. quantity cm3/1000 strokes : 16.0 Tolerance cm3/1000 strokes 3.0 Check tolerance cm3/1000s.6.0 Spreed Tolerance cm3/1000 strokes 6.0 Check tolerance 10.0 cm3/1000s. End of test specification sheet

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 16.01.97 Test oil : ISO 4113

Combination No. : 0 402 646 742T3

Injection pump

Pump designation : PE6P120A320LS7837-2

EP type number : 0 412 626 943

Governor

Governer design. : RQ300/1100PA1272 Governer no. : 0 421 801 804

Cust. part No. : 0270743002

Customer-spec. information Customer : MB-NFZ : OM441 LA Motor Power KW : 228.0

EST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C Tolerance °C 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5 Tolerance bar : +- 0.1

Overflow quantity

min. L/h : 120 Tolerance L/h : + 20.0

Test nozzle holde

: 1 688 901 019 assembly

Opening pressure

: 208.5 Tolerance bar : +- 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

5.25 Prestroke mm : + 0.05 Tolerance mm Check

tolerance mm : +- 0.10

Rack travel in mm : 20.50 Tolerance mm : + 0.50

Firing order : 6-3-5-2-4-

: 1

Phasing : 0-60-120-180-240 Tolerance : + 0.30

Check

tolerance  $^{\circ}NW$  : +- 0.50

Start of delivery mark

Tolerance : ← 0.10

Check

: +- 0.75 tolerance \*NW

Barrel no. : 6

CRT ZERO POSITION

Rack travel in mm: 12.60 Tolerance mm :  $\leftarrow$  0.05

		+ Tolerance mm : +- 0.20
BASIC SETTING		Rated speed rpm : 1100
		+ guide sleeve
Rated speed rpm	: 600	+ travel mm : 6.00
	, 333	$+$ Tolerance mm : $\leftarrow$ 0.10
		1000.000
Rack travel in mm	: 12.60	Rated speed rpm : 429
Tolerance mm		guide sleeve
TOCCI GITOC HAR	0.03	+ travel mm : 4.97
Del. quantity		+ Tolerance mm : +- 0.10
cm3/1000 strokes	193.5	1 occi arioc min
	. ,,,,,,	Rated speed rpm : 550
Tolerance		guide sleeve
cm3/1000 strokes	: <del>+-</del> 1.0	travel mm : 6.00
01107 1000 001 0000	• • • • • • • • • • • • • • • • • • • •	+ Tolerance mm : + 0.10
Check tolerance		Total ance man
cm3/1000s.	; <del></del>	Rated speed rpm : 1340
511127 (DODG).	4.0	+ Rated speed rpm : 1340 
Spreed		travel mm : 11.50
ohi eea		
Tellemande		+ Tolerance mm : $+$ 0.50
Talerance cm3/1000 strokes	. 40	<u>†</u>
cms/ ludu strokes	: 6.0	CUIDE OF FEUE CONTINU
Obaci, dalamina		+ GUIDE SLEEVE POSITION
Check tolerance	. 0.0	†
cm3/1000s.	: 9.0	†
		+ control lever
		position degree : 109
Dawn I am and man	700	Rated speed rpm : 650
Rated speed rpm	: 300	T
<b>6</b>	F 40	+ Rack travel in mm : 20.00
Rack travel in mm		† Tolerance mm : +- 0.80
Tolerance mm	: <b>←</b> 0.10	†
Del. quantity	40.0	
cm3/1000 strokes	: 19.0	+ FULL LOAD DELIVERY AT FULL LOAD STOP
Tolerance		†
cm3/1000 strokes	: +- 3.0	+ Rated speed rpm : 600
Check tolerance		Aneroid pressure
	: <del>←</del> 6.0	hPa : 600
Spreed		+ Del. quantity
Tolerance		+ cm3/1000 strokes : 193.5
cm3/1000 strokes	: 6.0	+ Tolerance
Check tolerance		+ cm3/1000 strokes : +- 1.0
cm3/1000s.	: 10.0	+ Check tolerance
		+ cm3/1000s. : +- 4.0
		+ Spreed
(B) SETTING OF IN	JECTION PUMP	+ Tolerance
WITH GOVERNOR		+ cm3/1000 strokes : 6.0
		+ Check tolerance
		+ cm3/1000s. : 9.0
GUIDE SLEEVE TRAVE	EL	+
		+
Rated speed rpm	: 1146	
guide sleeve		+ CONTROL LEVER
travel mm	: 6.54	+
Tolerance mm	: <b>←</b> 0.15	+ control lever
		position degree : 95.0
Rated speed rpm	: 300	+ tolerance degree : +- 4.0
guide sleeve		+
travel mm	: 2.24	+ RATED SPEED
	_	•

rack travel mm Rated speed rpm Tolerance 1/min Check speed 1/min	: 1150	† † †	2-stage LDA setti Rated speed rpm Pressure hPa	ing : 400 : 600
rack travel mm Rated speed rpm Tolerance 1/min Check speed 1/min	: 1240	† † † †	MEASUREMENT Pressure hPa rack travel mm Tolerance mm	: 350 : -0.80 : +- 0.15
rack travel mm Tolerance mm Rated speed rpm	: 0.75 : ← 0.75 : 1350	† † † . †	Pressure hPa rack travel mm Tolerance mm  Pressure hPa rack travel mm	: 200 : -2.00 : + 0.20 : 975 : 0.50
LOW IDLE			Tolerance mm	: <del></del> 0.05
control lever position degree tolerance degree		†	Start interlock Rated speed rpm Rated speed rpm Check	: > 100 : < 220
Testing:		1	speed 1/min Check	: > 80
Rated speed rpm rack travel mm Tolerance mm	: 5.60	+	speed 1/min	: < 240
rack travel mm Rated speed rpm Tolerance 1/min Rated speed rpm CRT mm min.	: +419 : + 20 : 220	+ + + + + + + + + + + + + + + + + + + +	Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 1500 : 1100 : 219.0
TORQUE CONTROL		<u> </u>	Check tolerance cm3/1000s. Spreed	: +- 4.5
Rated speed rpm rack travel mm Tolerance mm		+	Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 8.0 : 12.0
Rated speed rpm rack travel mm Tolerance mm	: 1100 : 13.70 : +- 0.10	1	Aneroid pressure hPa Rated speed rpm	: 1500
Rated speed rpm rack travel mm Tolerance mm	: 13.70	<del>-</del>	Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 214.0
ANEROID/ALTITUDE COMPENSATOR TEST		<del></del> ‡	Check tolerance cm3/1000s.	
		‡	Aneroid pressure hPa	: 350

400 Rated speed rpm Del. quantity cm3/1000 strokes : 160.0 Tolerance cm3/1000 strokes : +-1.0 Check tolerance cm3/1000s.4.0 Aneroid pressure hPa Rated speed rpm 500 Del. quantity cm3/1000 strokes : 151.0 Tolerance cm3/1000 strokes 1.0 Check tolerance cm3/1000s. 4.0 : +-STARTING FUEL DELIVERY Rated speed rpm 100 Del. quantity cm3/1000 strokes : 205.0 Tolerance cm3/1000 strokes : +- 15.0 Check tolerance cm3/1000s. : +- 19.0 LOW IDLE Rated speed rpm 300 Del. quantity cm3/1000 strokes : 19.0 Tolerance cm3/1000 strokes : +-3.0 Check tolerance cm3/1000s. 6.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s.10.0 End of test specification sheet

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 16.01.97

Test oil

: ISC 4113

Combination No. : 0 402 646 743

Injection pump

Pump designation : PE6P120A320LS7837-2

EP type number : 0 412 626 943

Governor

Governer design. : RQ300/1100PA1271

Governer no. : 0 421 801 803

Cust. part No. : 0270743102

Customer-spec. information

Customer : MB-NFZ

Motor

: 0M441 LA

Power KW

: 260.0

# TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C

40

Tolerance °C

: **←** 2.0

Overflow valve : 1 417 413 047

Inlet press. bar :

1.5

Tolerance bar : +- 0.1

Overflow quantity

min. l/h

: 120

Tolerance l/h:  $\leftarrow$  20.0

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

bar

208.5

Tolerance bar : + 1.5

**B20** 

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter:

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar :

Tolerance bar : + 1.0

Prestroke mm : 5.25 Tolerance mm : + 0.05

Check

: **←** 0.10 tolerance mm

Rack travel in mm : 20.50

Tolerance mm : +- 0.50

: 6-3-5-2-4-Firing order

: 1

: 0-60-120-180-240 Phasing

Tolerance : + 0.30

Check

tolerance \*NW : <del>←</del> 0.50

Start of delivery mark

Tolerance : **←** 0.10

Check

tolerance \*NW : +- 0.75

Barrel no.

CRT ZERO POSITION

Rack travel in mm: 14.50

Tolerance mm :  $\leftarrow$  0.10

		+	Tolerance mm	: <b>+</b> 0.20
BASIC SETTING			Rated speed rpm guide sleeve	: 1100
Rated speed rpm	: 600	1	travel mm	: 6.00
			Tolerance mm	· + 0.10
Rack travel in mm Tolerance mm		+	Rated speed rpm	: 425
rocerance num	: <b>←</b> 0.05	I	guide sleeve travel mm	: 4.89
Det. quantity cm3/1000 strokes	: 233.0	+	Tolerance mm	: +- 0.10
Tolerance		<del></del>	Rated speed rpm guide sleeve	: 550
cm3/1000 strokes	: +- 1.0	I	travel mm	: 6.00
			Tolerance mm	: + 0.10
Check tolerance		+		
cm3/1000s.	: <del>←</del> 4.0	+	Rated speed rpm	: 1340
Canad		†	guide sleeve	. 44 50
Spreed		†	travel mm	: 11.50
Tolerance		Ī	Tolerance mm	: +- 0.50
cm3/1000 strokes	: 6.0	I		
THE PROPERTY OF THE PROPERTY O	. 0.0	Ţ	GUIDE SLEEVE POS	ITION
Check tolerance		+		. 2***
cm3/1000s.	: 9.0	+		
		+	control lever	
		+	position degree	
<b>~</b>	700	+	Rated speed rpm	: 650
Rated speed rpm	: 300	†	Bash Assess 5	20.00
Rack travel in mm	. 5.40	†	Rack travel in m	
Tolerance mm	: 5.60 : ← 0.10	Ī	Tolerance mm	: +- 0.80
Del. quantity	. +- 0.10	I		
cm3/1000 strokes	: 18.0	I	FULL LOAD DELIVE	RY AT FULL LOAD STOP
Tolerance	. 10.0	1	TOLL COND DECIVE	IN AT TOLL LOAD STOP
cm3/1000 strokes	: ← 3.0	+	Rated speed rpm	: 600
Check tolerance		+	Aneroid pressure	
cm3/1000s.	: +- 6.0	+	hPa	: 850
Spreed		+	Del. quantity	
Tolerance		+	cm3/1000 strokes	: 233.0
cm3/1000 strokes	: 6.0	†	Tolerance	. 4.5
Check tolerance	. 10.0	†	cm3/1000 strokes	: +- 1.0
cm3/1000s.	: 10.0	†	Check tolerance cm3/1000s.	: <del>←</del> 4.0
		Ī	Spreed	: <del>←</del> 4.0
(B) SETTING OF IN.	JECTION PIMP	I	Tolerance	
WITH GOVERNOR	PER LOUR LOUR	I	cm3/1000 strokes	: 6.0
		1	Check tolerance	• • • • • • • • • • • • • • • • • • • •
			cm3/1000s.	: 9.0
GUIDE SLEEVE TRAVE	EL	1		
Rated speed rpm	: 1146	1		
guide sleeve		+	CONTROL LEVER	
travel mm	: 6.50	+		
Tolerance mm	: +- 0.15	+	control lever	
		+	position degree	
Rated speed rpm	: 300	+	tolerance degree	: <del>←</del> 4.0
guide sleeve	. 217	†	DATEN CDEFN	
travel mm	: 2.13	+	RATED SPEED	

rack travel mm	: 14.60	1		
Rated speed rpm	: 1150	+	2-stage LDA setti	ng
Tolerance 1/min Check	; — 5	†	Dated annud ann	: 400
speed 1/min	: + 13	‡	Rated speed rpm Pressure hPa	
rack travel mm	: 4.00	†	MEASUREMENT	
Rated speed rpm	: 1265	I	HEADOIGHENT	
Tolerance 1/min	: + 15	I	Pressure hPa	: 500
Check		1	rack travel mm	
speed 1/min	: + 20	+	Tolerance mm	
rack travel mm	: 0.75	‡	Pressure hPa	: 200
Tolerance mm		1	rack travel mm	
Rated speed rpm		+	Tolerance mm	
		• ‡	Pressure hPa	
		+	rack travel mm	: 0.45
LOW IDLE		+	Tolerance mm	: ← 0.05
COM INCE		Ī	Start interlock	
control lever		Ţ	Rated speed rpm	: > 100
position degree	: 74.0	1	Rated speed rpm	
tolerance degree	: <del>+-</del> 4.0	+		
_		+	Check	
Testing:		+	speed 1/min	: > 80
Date to the second	200	+	Check	2/0
Rated speed rpm	: 300 : 5.60	†	speed 1/min	: < 240
rack travel mm Tolerance mm	: 5.60 : +- 0.10	†	·	
forei diffe uni	0.10	I	FUEL DELIVERY CHA	RACTERISTICS
rack travel mm	: 2.00	1	- VLG PERSTERN VIII	1111 T T TO THE WE A WW
Rated speed rpm		+	Aneroid pressure	
Tolerance 1/min		+	hPa	: 1500
	0.00	†	Rated speed rpm	: 1100
Rated speed rpm	: 200	†	Del. quantity	. 252.0
CRT mm min.	. > 0 00	†	cm3/1000 strokes Tolerance	: 252.0
ON THE PERSON	7.00	I	cm3/1000 strokes	: <b>←</b> 1.5
		<del> </del>	Check tolerance	
TORQUE CONTROL		+	cm3/1000s.	: +- 4.5
		+	Spreed	
Rated speed rpm		+	Tolerance	
rack travel mm		†	cm3/1000 strokes	: 8.0
Tolerance mm	: +- 0.05	†	Check tolerance cm3/1000s.	: 12.0
Rated speed rpm	: 1100	I	CIID/ 10003.	, 12.0
rack travel mm		Ţ	Aneroid pressure	
Tolerance mm	: + 0.10	+	hPa	: 1500
		+	Rated speed rpm	
Rated speed rpm		+	Del. quantity	
rack travel mm		†	cm3/1000 strokes	: 258.0
Tolerance mm	: + 0.10	†	Tolerance cm3/1000 strokes	· <u>-</u> 7 0
		I	Check tolerance	, 5.0
ANEROID/ALTITUDE		Į	cm3/1000s.	: +- 6.0
COMPENSATOR TEST		+	,	
		+	Aneroid pressure	
		+	hPa	: 500

Rated speed rpm 400 Del. quantity cm3/1000 strokes : 185.0 Tolerance cm3/1000 strokes : +-1.0 Check tolerance cm3/1000s. 4.0 Aneroid pressure hPa Rated speed rpm 500 Del. quantity cm3/1000 strokes : 145.0 Tolerance cm3/1000 strokes 1.0 Sheck tolerance cm3/1000s.4.0 STARTING FUEL DELIVERY Rated speed rpm 100 Del. quantity cm3/1000 strokes : 240.0 Tolerance cm3/1000 strokes : +- 10.0 Check tolerance cm3/1000s. : + 14.0 LOW IDLE Rated speed rpm 300 Del. quantity cm3/1000 strokes : 18.0 Tolerance cm3/1000 strokes 3.0 Check tolerance cm3/1000s.6.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 10.0 End of test specification sheet

## Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.01.97 Test oil : ISO 4113

Combination No. : 0 402 648 780

Injection pump

Pump designation : PESP120A320LS7871 EP type number : 0 412 628 877

Governor

Governer design. : RQV300...1050PA1078

: 2K

Governer no. : 0 421 815 548

Cust. part No. : 988 04 47

Customer—spec. information Customer : LIEBHERR

Motor : D 9408 TI-EA3

Power KW : 420.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Overflow quantity

min. l/h : 230 Tolerance l/h : + 20.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : +- 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

#### **REMARKS**

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.65
Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : + 0.50

Firing order : 1-8-7-2-6

: - 5- 4

Phasing : 0-45-90-135-180

: -270-315 : +- 0.30

Tolerance Check

tolerance \*NW : + 0.50

# BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm: 12.65
Tolerance mm: + 0.05

Del. quantity

cm3/1000 strokes : 295.0

Tolerance

cm3/1000 strokes : +- 1.0

\_\_\_\_\_\_

Check tolerance cm3/1000s. : +- 4.0	GUILE SLEEVE POSITION
Spreed	T GOLDE SEELVE POSITION
Tolerance cm3/1000 strokes : 5.0	control lever position degree : - 1 Rated speed rpm : 1180
Check tolerance cm3/1000s. : 9.0	Rack travel in mm: 12.50 Tolerance mm: + 2.70
Rated speed rpm : 350	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm : 4.50 Tolerance mm : + 0.10 Del. quantity	Rated speed rpm : 1050 Aneroid pressure hPa : 1600
cm3/1000 strokes : 15.0 Tolerance	Del. quantity cm3/1000 strokes : 295.0
<pre>cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0</pre>	Tolerance cm3/1000 strokes : + 1.0 Check tolerance
Spreed Tolerance cm3/1000 strokes : 6.0	cm3/1000S. : + 4.0 + Spreed + Tolerance
Check tolerance : 10.0	+ cm3/1000 strokes : 5.0 + Check tolerance + cm3/1000s. : 9.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	CONTROL LEVER
GUIDE SLEEVE TRAVEL	control lever
Rated speed rpm : 1117 guide sleeve	position degree : 121.0 tolerance degree : + 4.0
travel mm : 10.27 Tolerance mm : + 0.15	RATED SPEED rack travel mm : 11.65 Rated speed rpm : 1120
Rated speed rpm : 300 guide sleeve travel mm : 1.11	Tolerance 1/min : + 5  rack travel mm : 4.00
Tolerance mm : + 0.20	Rated speed rpm : 1210 Tolerance 1/min : + 15
guide sleeve travel mm : 6.17	rack travel mm : 0.50 Tolerance mm : + 0.50
Tolerance mm : +- 0.25  Rated speed rpm : 480	Rated speed rpm : 1300
guide sleeve travel mm : 3.75 Tolerance mm : + 0.25	LOW IDLE
Rated speed rpm : 1330 guide sleeve	control lever
travel mm : 13.50 Tolerance mm : +- 0.50	position degree : 71.0 tolerance degree : + 4.0

		1		
Testing:		+	Pressure hPa	: 700 : 9.50
Rated speed rpm	: 350	Ŧ	rack travel mm; Tolerance mm	: + 0.20
rack travel mm Tolerance mm	: 4.50 : + 0.10	‡	Start interlock	
Rated speed rpm	: 300	‡	Rated speed rpm	
CRT mm min.	: > 5.50	‡	Rated speed rpm	: < 270
Rated speed rpm	: 400	‡	Check speed 1/min Check	: > 80
TORQUE CONTROL			speed 1/min	: < 290
Rated speed rpm		• ‡	FUEL DELIVERY CHA	ARACTERISTICS
rack travel mm Tolerance mm	: 12.65 : + 0.05	‡	Aneroid pressure	
		+	hPa	: 1600
Rated speed rpm	: 500	†	Rated speed rpm	
rack travel mm Tolerance mm	: 10.00	†	Del. quantity cm3/1000 strokes	
locerance mm	; +- 0.10	Ī	Tolerance	: 2/6.0
Rated speed rpm	• 800	I	cm3/1000 strokes	• + 30
rack travel mm	: 11.80	1	Check tolerance	
rack travel mm Tolerance mm	: <b>←</b> 0.10	+	cm3/1000s.	
Rated speed rpm	• 950	I	Aneroid pressure	
rack travel mm		I	hPa	: 1600
Tolerance mm		I	Rated speed rpm	
TOCCI GI ICC HAII	0.10	1	Del. quantity	. 300
Rated speed rpm	: 600	1	cm3/1000 strokes	: 299.0
rack travel mm	: 10.80	1	Tolerance	27710
Tolerance mm	: + 0.20	+	cm3/1000 strokes	
		I	Check tolerance cm3/1000s.	: + 6.0
ANEROID/ALTITUDE		+		
COMPENSATOR TEST		†	Aneroid pressure	
		†	hPa	- 550
SETTING		†	Rated speed rpm	: 550
SELLTING		Ī	Del. quantity cm3/1000 strokes	: 209.0
Rated speed rpm	: 1050	I	Tolerance	. 209.0
Pressure hPa		I	cm3/1000 strokes	· + 10
rack travel mm	: 12.65	1	Check tolerance	1.0
Tolerance mm	: <b>←</b> 0.05	1	cm3/1000s.	: +- 4.0
		1	Spreed	,,,,
Pressure hPa	: -	+	Tolerance	
Rated speed rpm	: 1050	+	cm3/1000 strokes	: 8.0
rack travel mm		+	Check tolerance	
Tolerance mm	: <b>←</b> 0.20	‡	cm3/1000s.	: 12.0
MEASUREMENT		<u>†</u>		
Rated speed rpm	: 1050	Ī	STARTING FUEL DEL	IVERY
Pressure hPa	: 1050	1	Rated speed rpm	: 100
rack travel mm	: 11.80	1	rack travel mm	9.20
Tolerance mm	: + 0.05	+	Tolerance mm	: ← 0.30

Del. quantity

cm3/1000 strokes : 140.0

Telerence

cm3/1000 strokes : +- 15.0

Check tolerance

cm3/1000s. : + 19.0

LOW IDLE

Rated speed rpm : 350

Del. quantity

cm3/1000 strokes : 15.0

Tolerance

cm3/1000 strokes : +-3.0

Check tolerance

: +cm3/100Cs. 5.0

Spreed

Tolerance

cm3/1000 strokes : 6.0

Check tolerance cm3/1000s. 10.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 17.01.97 Test oil : ISO 4113

Combination No. : 0 402 648 785

Injection pump

Pump designation : PE8P12OA32OLS7844 EP type number : 0 412 628 860

Governor

Governer design: : RQV350...1050PA1318

Governer no. : 0 421 814 185

Cust. part No. : 0270746302

Customer—spec. information Customer : MB-NFZ Motor : 0M442 LA Fower KW : 370.0

# TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. \*C : 40
Tolerance \*C : +- 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Overflow quantity

min. L/h : 130 Tolerance L/h : + 20.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter: 3.0

x length mm : 1000

# REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 5.05 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 20.50 Tolerance mm : + 0.50

Firing order : 8-7-2-6-3

: - 4- 1

Phasing : 0-45-90-135-180

: -270-315

Tolerance : + 0.30

Check

tolerance \*NW : + 0.50

Start of delivery mark

Tolerance : + 0.10

Check

tolerance \*NW : + 0.75

Barrel no. : 8

# BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm: 15.30

Tolerance mm : + 0.05

	l guido al covo
Del. quantity	+ guide sleeve + travel mm : 3.62
cm3/1000 strokes : 272.0	Tolerance mm : +- 0.25
Tolerance cm3/1000 strokes : + 1.0	Rated speed rpm : 1204 guide sleeve
	+ travel mm : 10.00
Check tolerance cm3/1000s. ; +- 4.0	Tolerance mm : +- 0.25
Spreed	+ Rated speed rpm : 1300 + guide sleeve
- 1	+ travel mm : 11.50
Tolerance cm3/1000 strokes : 5.0	↑ Tolerance mm : ← 0.50
Check tolerance cm3/1000s. : 9.0	GUIDE SLEEVE POSITION
	control lever
	+ position degree : - 1
Rated speed rpm : 350	Rated speed rpm : 1174
Rack travel in mm : 5.00	Rack travel in mm: 11.00
Tolerance mm : + 0.10	+ Tolerance mm : + 1.30
Del. quantity	+
cm3/1000 strokes : 19.0	
Tolerance	+ FULL LOAD DELIVERY AT FULL LOAD STOP
cm3/1000 strokes : $+$ 3.0	+
Check tolerance	+ Rated speed rpm : 1050
cm3/1000s. : +- 6.0	Aneroid pressure
Spreed Tolerance	+ hPa : 1300
cm3/1000 strokes : 6.0	+ Del. quantity + cm3/1000 strokes : 272.0
Check tolerance	Tolerance
cm3/1000s. : 10.0	cm3/1000 strokes : + 1.0
110000	+ Check tolerance
	+  cm3/1GOOS. : + 4.0
(B) SETTING OF INJECTION PUMP	Spreed
WITH GOVERNOR	+ Tolerance
	+ cm3/1000 strokes : 5.0
	+ Check tolerance
GUIDE SLEEVE TRAVEL	+ cm3/1600s. : 9.0
Rated speed rpm : 1106 guide sleeve	<u> </u>
travel mm : 8.02	+ CONTROL LEVER
Tolerance ואות : +- 0.15	+
	+ control lever
Rated speed rpm : 350	+ position degree : 120.0
guide sleeve	tolerance degree : + 4.0
travel mm : 1.48 Tolerance mm : ← 0.20	T DATEN SPEEN
Tolerance mm : + 0.20	+ RATED SPEED + rack travel mm : 14.30
Rated speed rpm : 900	Rated speed rpm : 1095
guide sleeve	Tolerance 1/min : +- 5
travel mm : 5.69	
Tolerance mm : + 0.25	rack travel mm : 4.00
·	+ Rated speed rpm : 1190
Rated speed rpm : 580	Tolerance 1/min : + 15

rack travel mm Tolerance mm Rated speed rpm	: 0.50 : ← 0.50 : 1300
LOW IDLE	
control lever position degree tolerance degree	: 64.0 : + 4.0
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 350 : 5.00 : ← 0.10
Rated speed rpm	: 250
CRT mm min.	: > 7.00
Rated speed rpm	: 450
TORQUE CONTROL	
Rated speed rpm rack travel mm Tolerance mm	: 1050 : 15.30 : ← 0.05
Rated speed rpm rack travel mm Tolerance mm	
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Pressure hPa Rated speed rpm	: - : 500
MEASUREMENT	
Pressure hPa rack travel mm Tolerance mm	: 700 : 4.60 : + 0.20
Pressure hPa rack travel mm Tolerance mm	: 180 : 0.20 : + 0.05
Start interlock	
Rated speed rpm	: > 100
cos	

Rated speed rpm	: < 270	
Check		
speed 1/min	: > 80	
Check speed 1/min	: < 290	
Speed 17 III 11	. \ 270	
FUEL DELIVERY CHA	RACTERISTICS	
Aneroid pressure	4000	
hPa Rated speed rpm	: 1800 : 800	
Del. quantity	. 000	
cm3/1000 strokes	: 274.0	
Tolerance cm3/1000 strokes	: + 3.0	
Check tolerance	: 3.0	
cm3/1000s.	: <b>←</b> 6.0	
Aneroid pressure		
hPa	; -	
Rated speed rpm Del. quantity	: 500	
cm3/1000 strokes	: 130.0	
Tolerance		
cm3/1000 strokes Check tolerance	: + 1.0	
cm3/1000s.	: <b>←</b> 4.0	
STARTING FUEL DEL	IVERY	
Rated speed rpm Del. quantity	: 100	
Rated speed rpm Del. quantity cm3/1000 strokes	: 100	
Rated speed rpm Del. quantity cm3/1000 strokes Tolerance	: 100 : 270.0	
Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	: 100 : 270.0 : ← 10.0	
Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 100 : 270.0	
Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	: 100 : 270.0 : ← 10.0	
Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	: 100 : 270.0 : ← 10.0	
Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  LOW IDLE Rated speed rpm	: 100 : 270.0 : ← 10.0	
Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  LOW IDLE Rated speed rpm Del. quantity cm3/1000 strokes	: 100 : 270.0 : ← 10.0 : ← 14.0	
Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  LOW IDLE Rated speed rpm Del. quantity cm3/1000 strokes Tolerance	: 100 : 270.0 : ← 10.0 : ← 14.0 : 350 : 19.0	
Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  LOW IDLE  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 100 : 270.0 : ← 10.0 : ← 14.0	
Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  LOW IDLE  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 100 : 270.0 : ← 10.0 : ← 14.0 : 350 : 19.0	
Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  LOW IDLE  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed	: 100 : 270.0 : ← 10.0 : ← 14.0 : 350 : 19.0 : ← 3.0	
Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  LOW IDLE  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance	: 100 : 270.0 : ← 10.0 : ← 14.0 : 350 : 19.0 : ← 3.0 : ← 6.0	
Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  LOW IDLE  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance	: 100 : 270.0 : ← 10.0 : ← 14.0 : 350 : 19.0 : ← 3.0 : ← 6.0 : 6.0	
Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  LOW IDLE  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes	: 100 : 270.0 : ← 10.0 : ← 14.0 : 350 : 19.0 : ← 3.0 : ← 6.0	_

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 21.01.97 Edition Test oil : ISO 4113

Combination No. : 0 402 676 823

Injection pump

Pump designation : PE6P120A320LS7885-1

EP type number : 0 412 626 948

Governor

Governer design. : RSV400...1000F1A589

Governer no. : 0 421 833 449

Cust. part No. : 9277732

Customer-spec. information Customer : LIEBHERR Motor : D 9406 TI

Power KW : 255.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C Tolerance °C : +- 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5 Tolerance par : +- 0.1

Overflow quantity

min. l/h : 125 Tolerance l/h : +- 20.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.55 Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1- 5- 3- 5- 2-

Phasing : 0-60-120-180-240 Phasing Tolerance

: **←** 0.30

Check

tolerance \*NW : +- 0.50

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm: 13.50 Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 263.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance cm3/1000S. : +- 4.0	Check tolerance cm3/1000s. : 9.0
Tolerance cm3/1000 strokes : 5.0	CONTROL LEVER control lever
Check tolerance cm3/1000s. 9.0	position degree : 105.0 tolerance degree : +- 4.0
Rated speed rpm : 400	RATED SPEED rack travel mm : 12.50 Rated speed rpm : 935 Tolerance 1/min : +- 5
Rack travel in mm: 4.90	
Tolerance mm : +- 0.10 - Del. quantity	rack travel mm : 4.00 Rated speed rpm : 1005
	Tolerance 1/min : + 15
Tolerance cm3/1000 strokes : + 3.0 check tolerance	rack travel mm : 0.85 Tolerance mm : + 0.55
cm3/1000s. : $\leftarrow$ 6.0	Rated speed rpm : 1200
Spreed .	
Tolerance - cm3/1000 strokes : 6.0 - Check tolerance - cm3/1000 strokes : 6.0 - cm3/1000 strokes	rack travel mm : 4.00 Rated speed rpm : 1015
cm3/1000s. : 10.0	
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	LOW IDLE control lever
<u> </u>	
GUIDE SLEEVE POSITION	position degree : 80.0 tolerance degree : +- 4.0
GOIDE SEEENE POSTITION	tolerance degree : +- 4.0
control lever	Setting point w/out bumper spring
position degree : -3	Rated speed rpm : 400
Rated speed rpm : 800 -	rack travel mm : 4.40
•	Tolerance mm : + 0.10
Rack travel in mm: 0.50	+
Tolerance mm : + 0.20	† Testing:
•	1 22
FULL LOAD DELTHERY AT FULL LOAD CTOD	Rated speed rpm : 400
FULL LOAD DELIVERY AT FULL LOAD STOP	rack travel mm : 4.90
Rated speed rpm : 900	Tolerance mm : + 0.10
Aneroid pressure	rack travel mm : 2.00
hPa : 1500	Rated speed rpm : 515
Del. quantity	Tolerance 1/min : + 30
cm3/1000 strokes : 263.0	
Tolerance -	
cm3/1000 strokes : + 1.0	TORQUE CONTROL
Check tolerance	
$cm3/1000s$ . : $\leftarrow$ 4.0	Rated speed rpm : 900
Spreed -	rack travel mm : 13.50
Tolerance -	Tolerance mm : +- 0.05
cm3/1000 strokes : 5.0	<del> </del>

Rated speed rpm : 700 rack travel mm : 13.50 Tolerance mm : + 0.10  Rated speed rpm : 500 rack travel mm : 13.50 Tolerance mm : + 0.10  ANEROID/ALTITUDE COMPENSATOR TEST	Check tolerance cm3/1000s. : +- 6.0  Aneroid pressure hPa : Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 243.0 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 4.0 Spreed
SETTING	Tolerance
Rated speed rpm : 500 Pressure hPa : 1500 rack travel mm : 13.50 Tolerance mm : + 0.10	cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0
Pressure hPa : -	STARTING FUEL DELIVERY
Pressure hPa : - Rated speed rpm : 500 rack travel mm : 12.35 Tolerance mm : + 0.20	Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : + 0.50
MEASUREMENT	Del. quantity
	cm3/1000 strokes : 220.0
Rated speed rpm : 500 + Pressure hPa : 1020 + Pressure hPa	Tolerance cm3/1000 strokes : +- 15.0 Check tolerance
rack travel mm : 13.20 Tolerance mm : + 0.05	cm3/1000s. : +- 19.0
Pressure hPa : 935 rack travel mm : 12.80 Tolerance mm : + 0.16	LCW IDLE
Start interlock	Rated speed rpm : 400 Del. quantity cm3/1000 strokes : 23.0
FUEL DELIVERY CHARACTERISTICS	Tolerance cm3/1000 strokes : +- 3.0
TOLL VELLVERY WINNESSERVED TO	Check tolerance
Aneroid pressure	cm3/1000s. : +- 6.0
hPa : 1500	Spreed
Rated speed rpm : 700 + Del. quantity +	Tolerance cm3/1000 strokes : 6.0
cm3/1000 strokes : 267.0	Check tolerance
Tolerance	cm3/1000s. : 10.0
cm3/1000 strokes : + 3.0	
Check tolerance cm3/1000s. : + 6.0	
Aneroid pressure hPa : 1500 Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 276.0 Tolerance	End of test specification sheet
cm3/1000 strokes : +- 3.0	

# BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Refer to Service Info for test and adjustment instructions. See microcard(s) W400/... Edition : 21.01.97 Test oil : ISO 4113 Combination No. : 0 402 676 823A Injection pump Pump designation : PE6P120A320LS7885-1 EP type number : 0 412 626 948 Governor Governer design. : RSV400...1000P1A589 Governer no. : 0 421 833 449 Cust. part No. : 9277732 Customer-spec. information Customer : LIEBHERR : D 9406 TI Motor : 255.0 Power KW TEST BENCH REQUIREMENTS Inlet line : 3.1 Test oil inlet temp. °C Tolerance °C : +- 2.0 Overflow valve : 1 417 413 047 Inlet press. bar : : +- 0.1 Tolerance bar Tolerance l/h: +- 10.0 Test nozzle holde : 1 688 901 105 assembly Opening pressure bar 208.5

x inside diameter : 3
x length mm : 1000 3.0 REMARKS (A) INJECTION PUMP SETTING VALUES Set equal delivery quant. per values \_\_\_\_\_ BEGINNING OF DELIVERY Test pressure bar : 26.0 Tolerance bar : + 1.0 : 4.55 Prestroke mm : +- 0.05 Tolerance mm Check tolerance mm : +- 0.10 Rack travel in mm : 10.50 Tolerance mm :  $\leftarrow$  1.50 Firing order : 1-6-3-5-2-Phasing : 0-60-120-180-240 Tolerance : +- 0.30 Check tolerance \*NW : + 0.50 BASIC SETTING Rated speed rpm : 950 Rack travel in mm : 15.90 Tolerance mm :  $\leftarrow$  0.05 Del. quantity cm3/1000 strokes : 270.0 Tolerance cm3/1000 strokes : +- 1.0Check tolerance cm3/1000s. : +-4.0

Outside diameter : 8.0

C07

Tolerance bar : + 1.5

Test lines : 1 680 750 075

	1
Spreed	
Tolerance cm3/1000 strokes : 5.0	CONTROL LEVER
	control lever
Check tolerance	position degree : 104.0
cm3/1000s. : 9.0	tolerance degree : +- 4.0
	RATED SPEED
Rated speed rpm : 400	+ rack travel mm : 14.90
Rated Speed Phili . 400	Rated speed rpm : 980 Tolerance 1/min : +- 5
Rack travel in mm: 4.70	+
Tolerance mm : + 0.10	+ rack travel mm : 4.00
Del. quantity	+ Rated speed rpm : 1080
cm3/1000 strokes : 23.0	+ Tolerance 1/min : ← 15
Tolerance	†
cm3/1000 strokes : + 3.0	rack travel mm : 0.85
Check tolerance	Folerance mm : + 0.55
cm3/1000s. : +- 6.0 Spreed	+ Rated speed rpm : 1200
Tolerance	rack travel mm : 4.00
cm3/1000 strokes : 6.0	+ Rated speed rpm : 1090
Check tolerance	+
cm3/1000s. : 10.0	†
GUIDE SLEEVE POSITION	control lever position degree : 78.0 tolerance degree : +- 4.0
	+
control lever	+ Setting point w/out bumper spring
position degree : - 3	Rated speed rpm : 400
Rated speed rpm : 800	rack travel mm : 3.40
	Tolerance mm : + 0.10
Rack travel in mm : 0.50 Tolerance mm : + 0.20	Testing:
	1
	Rated speed rpm : 400
FULL LOAD DELIVERY AT FULL LOAD STOP	rack travel mm : 4.70
Dated aread and COO	Tolerance mm : + 0.10
Rated speed rpm : 950	† nack tanval m 3 00
Aneroid pressure hPa : 1500	+ rack travel mm : 2.00 + Rated speed rpm : 460
hPa : 1500 Del. quantity	+ Rated speed rpm : 460 + Tolerance 1/min : +- 30
cm3/1000 strokes : 270.0	T Total dile 1/11/11 . T- 50
Tolerance	
cm3/1000 strokes : + 1.0	TORQUE CONTROL
Check tolerance	Poted aread area : 050
cm3/1000s. : + 4.0 Spreed	Rated speed rpm : 950 rack travel mm : 15.90
Tolerance	+ rack travel mm : 15.90 + Tolerance mm : +- 0.05
cm3/1000 strokes : 5.0	T (Otel dilice mill . *- U.U.)
Check tolerance	Rated speed rpm : 500
cm3/1000s. : 9.0	rack travel mm : 15.90

Toterance mm	: +- 0.10
Rated speed rpm rack travel mm Tolerance mm	: 700 : 15.90 : ← 0.30
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 550 : 1500 : 15.90 : +- 0.05
Pressure hPa Rated speed rpm rack travel mm Tolerance mm	: - : 550 : 12.90 : + 0.10
MEASUREMENT	
Rated speed rpm	: 550
Pressure hPa rack travel mm Tolerance mm	: 1050 : 15.20 : +- 0.05
Pressure hPa rack travel mm Tolerance mm	: 850 : 13.60 : + 0.10
Start interlock	
FUEL DELIVERY CHA	ARACTERISTICS
Aneroid pressure	: 1500
Rated speed rpm	: 1500 : 500
Del. quantity cm3/1000 strokes	: 281.0
Tolerance cm3/1000 strokes	: <b>←</b> 3.0
Check tolerance cm3/1000s.	: +- 6.0
Aneroid pressure hPa Rated speed rpm Del. quantity	: 1500 : 700
cm3/1000 strokes Tolerance	: 277.0
cm3/1000 strokes Check tolerance	: +- 3.0
cm3/1000s.	: ← 6.0

Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: - : 550 : 227.0 : + 1.0 : + 4.0 : 8.0 : 12.0
STARTING FUEL DEL	IVERY
Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 100 : 20.50 : + 0.50 : 160.0 : + 10.0 : + 14.0
LOW IDLE	
Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Cneck tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 400 : 23.0 : ← 3.0 : ← 6.0 : 6.0 : 10.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 21.01.97 Test oil : ISO 4113

Combination No. : 0 402 676 8238

Injection pump

Pump designation : PE6P12OA32OLS7885-1

EP type number : 0 412 626 948

Governor

Governer design. : RSV400...1000P1A589

Governer no. : 0 421 833 449

Cust. part No. : 9277732

Customer-spec. information

Customer : LIEBHERR

: D 9406 TI-E A3

Motor Power KW

: 250.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C

Tolerance °C

: +- 2.0

Overflow valve : 1 417 413 047

Inlet press. bar :

1.5

Tolerance bar

: + 0.1

Tolerance l/h:  $\leftarrow$  10.0

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

bar

208.5

Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter :

3.0

x length mm : 1000

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.55 Tolerance mm : +- 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order

: 1-6-3-5-2-

: 0-60-120-180-240 Phasing

Tolerance

: +- 0.30

Check

: +- 0.50

tolerance \*NW

BASIC SETTING

Rated speed rpm :

900

Rack travel in mm : 15.50

Tolerance mm : += 0.05

Del. quantity

cm3/1000 strokes : 263.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance

cm3/1000s.

: +-4.0

c10

Spreed		t control lever
•		position degree : 99.0
Tolerance cm3/1000 strokes	. 50	+ tolerance degree : ← 4.0
CIIDY LOOO 2510KE2	. 5.0	T RATED SPEED
Check tolerance cm3/1000s.		+ rack travel mm : 14.50
CMD/ (UUUS.	: 9.0	+ Rated speed rpm : 935 + Tolerance 1/min : +- 5
		+
Rated speed rpm	: 400	rack travel mm : 4.00 Rated speed rpm : 1065
, ,		Tolerance 1/min : + 15
Rack travel in mm Tolerance mm	: 4.70 : + 0.10	rack travel mm : 0.85
Del. quantity		+ Tolerance mm : + 0.55
am3/1000 strokes Tolerance	: 23.0	Rated speed rpm : 1200
cm3/1000 strokes	: ← 3.0	rack travel mm : 4.00
Check tolerance		Rated speed rpm : 1010
cm3/1000s. Spreed	: +- 6.0	1
Toterance		+
cm3/1000 strokes Check tolerance	: 6.0	LOW IDLE
cm3/1000s.	: 10.0	+ cow loce
		+ control lever
(B) SETTING OF INJ	JECTION PUMP	+ position degree : 76.0
WITH GOVERNOR		tolerance degree : +- 4.0
		Setting point w/out bumper spring
CUINT OF FOUR DOCKS		+
GUIDE SLEEVE POSIT	1100	+ Rated speed rpm : 400 + rack travel mm : 3.40
		+ Tolerance mm : +- 0.10
control lever position degree	: - 3	+ Testing:
poort of acgree		+
FILL LOAD DELTVED	Y AT FULL LOAD STOP	+ Rated speed rpm : 400 + rack travel mm : 4.70
FOLL LOAD DELIVER	I AT FOLL LOAD STOP	+ Tolerance mm : + 0.10
kated speed rpm	: 900	+
Aneroid pressure hPa	: 1500	TORQUE CONTROL
Del. quantity		+
cm3/1000 strokes Tolerance	: 263.0	+ Rated speed rpm : 900 + rack travel mm : 15.50
cm3/1000 strokes	: + 1.0	+ Tolerance mm : +- 0.05
Check tolerance		† Dated anad and
cm3/1000s. Spreed	: ← 4.0	+ Rated speed rpm : 500 + rack travel mm : 15.50
Tolerance	<b>p</b> -	Tolerance mm : + 0.10
cm3/1000 strokes Check tolerance	: 5.0	Rated speed rpm : 700
cm3/1000s.	: 9.0	+ rack travel mm : 15.50
		Tolerance mm : + 0.30
		Į
CONTROL LEVER		+

Aneroid pressure hPa Rated speed rpm Del. quantity	: 1500 : 50C
FUEL DELIVERY CHA	RACTERISTICS
Start interlock	
Pressure hPa rack travel mm Tolerance mm	: 840 : 13.90 : + 0.10
rack travel mm Tolerance mm	: 14.90 : + 0.05
Fressure hPa	: 950
Rated speed rpm	: 500
MEASUREMENT	
Pressure hPa Rated speed rpm rack travel mm Tolerance mm	: - : 500 : 13.70 : + 0.10
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 1500 : 15.50 : + 0.05
SETTING	
ANEROID/ALTITUDE COMPENSATOR TEST	

Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 243.0 : + 1.0 : + 4.0 : 8.0 : 12.0
STARTING FUEL DEL	IVERY
Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	
LOW IDLE	
Rated speed rpm Del. quantity	: 400
cm3/100C strokes Tolerance	: 23.0
cm3/1000 strokes	: +- 3.0
Check tolerance cm3/1000S. Spreed	: +- 6.0
Tolerance cm3/1000 strokes	: 6.0
Check tolerance cm3/1000S.	: 10.0

Tolerance

Tolerance

hPa

Check tolerance cm3/1000s.

Aneroid pressure

Rated speed rpm

Check tolerance cm3/1000s.

Aneroid pressure

'Rated speed rpm :

cm3/1000 strokes :  $\leftarrow$  3.0

Del. quantity cm3/1000 strokes : 269.0

cm3/1000 strokes : + 3.0

: + 6.0

: 1500

: + 6.0

500

: 700

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 21.01.97 : ISO 4113

Combination No. : 0 402 676 8230

Injection pump

Pump designation : PE6P12OA320LS7885-1

EP type number : 0 412 626 948

Governor

Governer design. : RSV400...1000P1A589

Governer no. : 0 421 833 449

Cust. part No. : 9277732

Customer-spec. information

Customer : LIEBHERR

Motor

: D 9406 TI-E

Power KW

: 255.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C

40

Tolerance °C

: <del>←</del> 2.0

Overflow valve : 1 417 413 047

Inlet press. bar :

1.5

Tolerance bar

: **←** 0.1

Tolerance l/h: +- 10.0

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

bar

208.5

Tolerance bar : +- 1.5

Test Lines

: 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.55 Tolerance mm : + 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 10.50

Tolerance mm : ← 1.50

Firing order : 1-6-3-5-2-

Phasing : 0-60-120-180-240

Phasing Tolerance : ← 0.30

Check

tolerance \*NW : ← 0.50

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 15.50

Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes :

263.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s.

: +- 4.0

C13

Spreed	t control lever
	+ position degree : 99.0
Tolerance cm3/1000 strokes : 5.0	tolerance degree : +- 4.0
Check tolerance	+ rack travel mm : 14.50
cm3/1000s. : 9.0	+ Rated speed rpm : 935
	+ Tolerance 1/min : + 5
	+
70 A A A 300	+ rack travel mm : 4.00
Rated speed rpm : 400	+ Rated speed rpm : 1005
Dools trough do no / 70	+ Tolerance 1/min : + 15
Rack travel in mm : 4.70 Tolerance mm : + 0.10	T sook Annual on 0.05
Tolerance mm : + 0.10  Del. quantity	+ rack travel mm : 0.85 + Tolerance mm : + 0.55
cm3/1000 strokes : 23.0	Tolerance mm : + 0.55 Rated speed rpm : 1200
Tolerance	T Rated Speed (pill) : 1200
cm3/1000 strokes : +- 3.0	rack travel mm : 4.00
Check tolerance	+ Rated speed rpm : 1010
cm3/1000s. : + 6.0	+
Spreed	+
Tolerance	+
cm3/1000 strokes : 6.0	+
Check tolerance	+ LOW IDLE
cm3/1000s. : 10.0	†
	T aumtinat Livian
(B) SETTING OF INJECTION PUMP	control lever position degree : 76.0
WITH GOVERNOR	tolerance degree : + 4.0
WETT GOTERNON	+ cotter direct degree 4.0
	Setting point w/out bumper spring
GUIDE SLEEVE POSITION	Rated speed rpm : 400
	+ rack travel mm : 3.40
	+ Tolerance mm : + 0.10
control lever	†
position degree : - 3	† Testing:
	Rated speed rpm : 4CO
FULL LOAD DELIVERY AT FULL LOAD STOP	rack travel mm : 4.70
TOLE LOAD DELIVERY AT TOLE LOAD STOT	Tolerance mm : +- 0.10
Rated speed rpm : 500	-
Aneroid pressure	4.
hPa : 1500	+ TORQUE CONTROL
Del. quantity	+
cm3/1000 strokes : 263.0	+ Rated speed rpm : 900
Tolerance	+ rack travel mm : 15.50
cm3/1000 strokes : + 1.0	+ Tolerance mm : +- 0.05
Check tolerance	† Botal analysis 700
cm3/1000s. : +- 4.0	+ Rated speed rpm : 500 + rack travel mm : 15.50
Spreed Tolerance	+ rack travel mm : 15.50 + Tolerance mm : + 0.10
cm3/1000 strokes : 5.0	Toterance mm : + 0.10
Check tolerance	Rated speed rpm : 700
cm3/1000s. : 9.0	rack travel mm : 15.50
	+ Tolerance mm : + 0.30
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	+
CONTROL LEVED	+

ANEROID/ALTI	TUDE
COMPENSATOR	

#### SETTING

Rated speed rpm 500 1500 Pressure hPa 15.50 rack travel mm Tolerance mm : **←** 0.05

Pressure hPa 500 Rated speed rpm 13.70 rack travel mm Tolerance mm : + 0.10

#### **MEASUREMENT**

Rated speed rpm 500

950 Pressure hPa : 14.90 rack travel mm Tolerance mm : **←** 0.05

840 Pressure hPa 13.90 rack travel mm : + 0.10Tolerance mm

Start interlock

# FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

h2a 1500 Rated speed rpm 500 Del. quantity

cm3/1000 strokes : 275.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  3.0

Check tolerance

cm3/1000s.

Aneroid pressure

1500 hPa Rated speed rpm 700

Del. quantity cm3/1000 strokes : 269.0

Tolerance

cm3/1000 strokes 3.0 Check tolerance

cm3/1000s. 6.0

Aneroid pressure

hPa Rated speed rpm 500 Del. quantity cm3/1000 strokes : 243.0 Tolerance cm3/1000 strokes : +-1.0 Check tolerance cm3/1000s. 4.0 Spreed Tolerance cm3/1000 strokes : 8.0

Check tolerance cm3/1000s. 12.0

#### STARTING FUEL DELIVERY

Rated speed rpm 100 20.50 rack travel mm : +- 0.50 Tolerance mm Del. quantity cm3/1000 strokes : 160.0 Tolerance cm3/1000 strokes : +- 10.0Check tolerance cm3/1000s.: +- 14.0

#### LOW IDLE

Rated speed rpm 400 Del. quantity cm3/1000 strokes : 23.0 Tolerance cm3/1000 strokes : +-3.0 Check tolerance cm3/1000s. : +-6.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. 10.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 17,01,97 : ISO 4113

Combination No. : 0 402 676 836

Injection pump

Pump designation : PE6P120A320LS7898 EP type number : 8 412 626 957

Governor

Governer design. : RSV350...1050P0A668

Governer no. : 0 421 833 587

Cust. part Nc. : 0280740302

Customer-spec. information Customer : MB-NFZ

Motor : OM441 A euromot

Power KW : 190.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C temp. °C : 40 Tolerance °C : +- 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 7,5
Tolerance bar : + 0,1

Overflow quantity

min. L/h : 130 Tolerance L/h : + 20.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter: 3.0

x length mm : 1000

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 5.25 Tolerance mm : + 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 20.50 Tolerance mm : → 0.50

Firing order : 6-3-5-2-4-

: 1

Phasing : 0-60-120-180-240 Tolerance : +-0.30

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.50

Start of delivery mark

Tolerance : +- 0.10

Check

tolerance \*NW : +- 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1030

Rack travel in mm : 13.30

Tolerance mm :  $\leftarrow$  0.05

1	Aneroid pressure
Del. quantity	hPa : 1000
cm3/1000 strokes : 206.0	Del. quantity
	cm3/1000 strokes : 206.0
Tolerance	Tolerance
cm3/1000 strokes : + 1.0	cm3/1000 strokes : + 1.0 Check tolerance
Check tolerance	cm3/1000s. : +- 4.0
cm3/1000s. : + 4.0	Spreed
	Tolerance
Spreed	cm3/1000 strokes : 5.0
Tolerance	Check tolerance
cm3/1000 strokes : 5.0	cm3/1000s. : 9.0
5.0	
Check tolerance	
cm3/1000s. : 9.0	CONTROL LEVER
	control lever
I	position degree : 93.0
Rated speed rpm : 350	, , , , , , , , , , , , , , , , , , ,
†	
Rack travel in mm: 5.40	ASSEMBLY GOVERNOR SETTING
Tolerance mm : + 0.10 + Del. quantity +	Rated speed rpm : 1070
cm3/1000 strokes : 19.0	Rated speed rpm : 1070 rack travel mm : 12.30
Tolerance	TOOK CT AVEC HAIT . TE. 30
cm3/1000 strokes : + 3.0 +	Rated speed rpm : 1152
Check tolerance	Tolerance 1/min : +- 4
cm3/1000s. : + 6.0	rack travel mm : 4.00
Spreed Tolerance	rack travel mm : 0.85
cm3/1000 strokes : 6.0	Tolerance mm : + 0.55
Check tolerance	Rated speed rpm : 1300
cm3/1000s. : 10.0 +	·
†	Dated aread are . 1071
(B) SETTING OF INJECTION PUMP	Rated speed rpm : 1071 rack travel mm : 12.30
WITH GOVERNOR	Tack of dyec mit.
+	Rated speed rpm : 1153
+	Tolerance 1/min : + 4
CHINE CLEENE DOCUTION	rack travel mm : 4.00
GUIDE SLEEVE POSITION	rack travel mm : 0.85
1	Tolerance mm : + 0.55
control lever	Rated speed rpm : 1300
position degree : - 3	
Rated speed rpm : 800	Dated aread now . 1072
Rack travel in mm: 0.50	Rated speed rpm : 1072 rack travel mm : 12.30
Tolerance mm : + 0.20	TOOK CI GYCC HAIF . TE.30
+	Rated speed rpm : 1154
governor spring	Tolerance 1/min : +- 4
pre-tension +	rack travel mm : 4.00
click setting $x$ : 4.00	rack travel mm : 0.85
	Tolerance mm : +- 0.55
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 1300
1070	
Rated speed rpm : 1030 +	

Rated speed rpm : 1073 rack travel mm : 12.30	Tolerance mm : + 0.05
Rated speed rpm : 1155	Rated speed rpm : 800 rack travel mm : 13.30
Tolerance 1/min : +- 4	rack travel mm : 13.30 Tolerance mm : + 0.10
rack travel mm : 4.00	T :ocerance num o. (t)
	Rated speed rpm : 400
rack travel mm : 0.85 Tolerance mm : + 0.55	+ rack travel mm : 12.05
Rated speed rpm : 1300	Tolerance mm : +- 0.15
rated speed i pili . 1300	I
	+ ANEROID/ALTITUDE
Rated speed rpm : 1074	- COMPENSATOR TEST
rack travel mm : 12.30	+
	+
Rated speed rpm : 1156	+ SETTING
Tolerance 1/min : +- 4	+
rack travel mm : 4.00	+ Rated speed rpm : 400
neal travel on a COF	Pressure hPa : 1000
rack travel mm : 0.85 Tolerance mm : + 0.55	+ rack travel mm : 13.30 + Tolerance mm : + 0.05
Rated speed rpm : 1300	T rocerance and : - 0.05
Mateu Speed Pair . 1900	Pressure hPa : -
	Rated speed rpm : 400
Rated speed rpm : 1075	rack travel mm : 10.40
rack travel mm : 12.30	rack travel mm : 10.40 Tolerance mm : + 0.15
	+
Rated speed rpm : 1157	+ MEASUREMENT
Tolerance 1/min : + 4	t
rack travel mm : 4.00	+ Rated speed rpm : 400
rack travel mm : 0.35	Pressure hPa : 500
Tolerance mm : + 0.55	rack travel mm : 12.05
Rated speed rpm : 1300	+ Tolerance mm : + 0.15
	+ Pressure hPa : 350
LOW IDLE	+ rack travel mm : 10.80
	+ Tolerance mm : +- 0.15
control loves	t Charle intentions
control lever position degree : 71.0	+ Start interlock
position degree . 71.0	I
Testing:	
-	FUEL DELIVERY CHARACTERISTICS
Rated speed rpm : 350	+
rack travel mm : 5.40	+ Aneroid pressure
Tolerance mm : +- 0.10	+ hPa : 1000
mank demonstration in a 2.00	Rated speed rpm : 800
rack travel mm : 2.00 Rated speed rpm : 415	+ Del. quantity + cm3/1000 strokes : 207.0
Rated speed rpm : 415	Tolerance
SET IDLE AUXILIARY SPRING	+ cm3/1000 strokes : + 3.0
Car arms rightmathit of theirs	- Check tolerance
rack travel mm : 2.00	+  cm3/1000s. : +- 6.0
	+ Spreed
	Tolerance
TORQUE CONTROL	+ cm3/1000 strokes : 8.0
4070	+ Check tolerance
Rated speed rpm : 1030	+ cm3/1000s. : 12.0
rack travel mm : 13.30	†

Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 500 : 400 : 154.0 : ← 1.0 : ← 4.0 : 8.0 : 12.0
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes	: 500 : 135.0 : + 1.0 : + 4.0 : 8.0 : 12.0
STARTING FUEL DEL	IVERY
Tolerance	: 100 : 200.0 : + 10.0 : + 14.0
LOW IDLE Rated speed rpm	: 350

End of test specification sheet

Spreed Tolerance

Del. quantity cm3/1000 strokes :

Check tolerance cm3/1000s.

Check tolerance cm3/1000s.

Tolerance cm3/1000 strokes : +-

cm3/1000 strokes :

19.0

3.0

6.0

6.0

10.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 22.01.97 : ISO 4113

Combination No. : 0 402 698 033F1

Injection pump

Pump designation : PE8H120/320LS3-2

EP type number

Governor

Governer design.

: RE36 (FD 57102 - FD

: 57108)

Governer no.

Cust. part No. : 0250745602

Customer—spec. information

Customer

: MB-NFZ

Motor

: OM 442 LA

TEST BENCH REQUIREMENTS

Inlet line

: 3.2 ELAB

Test oil inlet

temp. \*C

Tolerance °C

: +- 2.0

Overflow valve

: 2 417 413 032

Inlet press. bar :

Tolerance bar

: +-0.1

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

208.5

Tolerance bar

: +- 1.5

Test lines

: 1 680 750 089

Outside diameter : 8.0

x inside diameter :

x length mm

3.0 600

**REMARKS** 

Pump-specific values

in Section (B)

must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery

under Section C.

BEGINNING OF DELIVERY

Test pressure bar :

Tolerance bar : + 1.0

Prestroke mm 7.00

: +- 0.05 Tolerance mm

: +- 0.10 tolerance mm

Rack travel in mm: 10.50

Tolerance mm :  $\leftarrow$  0.50

Firing order : 8-7-2-6-3 : - 4- 1

Phasing : 0-45-90-135-180

: -270-315

: **←** 0.50 Tolerance

Check

: **←** 0.75 tolerance \*NW

Start of delivery mark

Tolerance : **←** 0.50

Check

tolerance \*NW : + - 0.75

Barrel no. : 8

(B) POSITIONER TESTING Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION
Engine speed min-1: 0
Setting point (P, R and H pump)
Uact V : 3.100 CRT mm : 13.00 Tolerance mm : +/- 0.05 Check tolerance mm : +/- 0.10 Check value (P, R and H pump)
Uact V : 1.700 CRT mm : 6.15 Tolerance mm : +/- 0.25 Check tolerance mm : +/- 0.30
Setting point (M pump)
Uact V : 3.100 CRT mm : 12.50 Tolerance mm : +/- 0.05 Check tolerance mm : +/- 0.10
Check value (M pump)
Uact V : 1.700 CRT mm : 5.50 Tolerance mm : +/- 0.25 Check tolerance mm : +/- 0.30
Stop position
Uact V : Value with deenergised adjusting magnet and control rod in
stop position.  CRT mm : 0.75  Tolerance mm : +/- 0.25  Check
tolerance mm : +/- 0.35
ENGINE-SPEED SENSOR (All P and R pumps not H and M pumps)

Test with control rod in stop position
Engine speed min-1: 60 Amplitude V: 1.4 Tolerance V: +/- 0.6
Check tolerance V : +/- 1.20
Engine speed min-1: 600 Difference
Amplitude to Amplitude V : max.1.4
Ampereuse v . max. (.4
(C) INJECTION PUMP WITH POSITIONER
TEST POINT V1
Rated speed rpm : 750 Uact V : 2.800
Prestroke solenoid Stroke mm : 7.40
Del. quantity cm3/1000 strokes : 347.0
Tolerance cm3/1000 strokes : +- 1.0
Check tolerance cm3/1000s. : + 4.0
Spreed Tolerance cm3/1000 strokes : 5.0
Check tolerance cm3/1000s. : 9.0
FUEL DELIVERY CHARACTERISTICS
Rated speed rpm : 950
Uact V : 2.900 Prestroke solenoid
Stroke mm : 8.00 Del. quantity
cm3/1000 strokes : 334.0 Tolerance cm3/1000 strokes : +- 4.0
cm3/1000 strokes : +- 4.0 Check tolerance cm3/1000s. : +- 8.0
Rated speed rpm : 550
Unct V : 2.700 Prestroke solenoid
Stroke mm : 9.50 Del. quantity
cm3/1000 strokes : 354.0 Tolerance
cm3/1000 strokes : +- 4.0 Check tolerance
cm3/1000s. : + 8.0

# TEST POINT L1

Rated speed rpm	:	300
Uact V	:	1.500
Tolerance Voit	:	<b></b> 0.060
Check tolerance		
Volt	: •	<b></b> 0.060
Prestroke solenoi	d	
Stroke mm	:	8.00
Del. quantity		
cm3/1000 strokes	:	37.0
Tolerance		
cm3/1000 strokes	: •	<del>^</del> − 3.0
Spreed		
Tolerance		
cm3/1000 strokes	:	6.0
Check tolerance		
cm3/1000s.	:	9.0

# STARTING FUEL DELIVERY

Rated speed rpm	:		100
Uact V	:		1.900
Prestroke solenoid			
Stroke mm	:		10.00
Del. quantity			
cm3/1000 strokes	:		114.0
Tolerance			
cm3/1000 strokes	:	+-	10.0
Check tolerance			
cm3/1000s.	:	+-	20.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W409/...

Edition Test oil

: 22.01.97 : ISO 4113

Combination No. : 0 402 698 033F2

Injection pump

Pump designation : PE8H120/320LS3-2

EP type number

Covernor

Governer design. : RE36 (FD 57109 - FD

: 66213)

Governer no.

Cust. part No. : 0250745602

Customer-spec. information Customer : MB-NFZ Motor : OM 442 LA

## TEST BENCH REQUIREMENTS

Inlet line : 3.2 ELAD

Test oil inlet

temp. °C Tolerance \*C : <del>+-</del> 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : Tolerance bar : +- 0.1

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

208.5 bar Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0 x length m/n : 600

#### REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS No basic setting. Setting of constant delivery under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : +- 1.0

Prestroke mm : 7.00 rrestroke mm Tolerance mm : ← 0.05 Check tolerance mm : + 0.10

Rack travel in mm: 10.50 Tolerance  $m_{\rm fit}$  :  $\leftarrow$  0.50

Firing order : 8-7-2-6-3 : - 4- 1

Phasing : 0-45-90-135-180

: -270-315 Tolerance : +- 0.50

Check

tolerance \*NW : + 0.75

Start of delivery mark

Tolerance : + 0.50

Check

tolerance \*NW : + 0.75

Barrel no. : 8

(B) POSITIONER TESTING Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 V

	+ Test with control rod
TESTING & SETTING RACK TRAVEL SENSOR POSITION	in stop position
	Engine speed min-1: 60
Engine speed min-1: 0	Amplitude V : 1.4 Tolerance V : +/- 0.6
Data da maranta	
Setting point (P, R and H pump)	+ Check + tolerance V : +/- 1.20
ary are a panel	+
Uact V : 3.100	+ Engine speed min-1: 600
CRT mm : 13.00	+ Difference
Tolerance mm : +/- 0.05	+ Amplitude to
tolerance mm : +/- 0.10	Amplitude V : max.1.4
toser drice min	Ţ
Check value	+
(P, R and H pump)	(C) INJECTION PUMP WITH POSITIONER
	TEST POINT V1
Uect V : 1.700 CRT mm : 6.15	† Basadani t
CRT mm : 6.15 Tolerance mm : +/- 0.25	+ Rated speed rpm : 750
Tolerance mm : +/- 0.25 Check	+ Uact V : 2.800 + Prestroke solenoid
tolerance mm : +/- 0.30	Stroke mm : 7.40
. · / 0.30	Del. quantity
	+ cm3/1000 strokes : 350.0
Setting point	+ Tolerance
(M pump)	+ cm3/1000 strokes : + 1.0
	Check tolerance
Uact V : 3.100	+ cm3/1000s. : $+$ 4.0
CRT mm : 12.50 Tolerance mm : +/- 0.05	Spreed
Check	+ Tolerance + cm3/1000 strokes : 5.0
tolerance mm : +/- 0.10	Check tolerance
	+ cm3/1000s. : 9.0
Check value	+
(duna)	+ FUEL DELIVERY CHARACTERISTICS
Uact V : 1.700	Rated speed rpm : 950
CRT mm : 5.50	+ Uact V : 2.900
Tolerance mm : +/- 0.25	+ Prestroke solenoid
Check	+ Stroke mm : 8.00
tolerance mm : +/- 0.30	+ Del. quantity
• • • • • • • • • • • • • • • • • • •	+ cm3/1000 strokes : 336.0
Stop position	Tolerance cm3/1000 strokes : + 4.0
Uact V : Value with	+ cm3/1000 strokes : +- 4.0 + Check tolerance
deenergised adjusting magnet	- cm3/1000s. : + 8.0
and control rod in	+
stop position.	+ Rated speed rpm : 550
CRT mm : 0.75	+ Uact V : 2.700
Tolerance mm : +/- 0.25	+ Prestroke solenoid
Check	+ Stroke mm : 9.50
tolerance mm : +/- 0.35	+ Del. quantity + cm3/1000 strokes : 357.0
	Tolerance
ENGINE-SPEED SENSOR	cm3/1000 strokes : + 4.0
(All P and R pumps not	Check tolerance
H and M pumps)	+ cm3/1000s. : +- 8.0

# TEST POINT L1

Rated speed rpm	:		300
Uact V	•		1.500
Tolerance Volt	:	+-	0.060
Check tolerance			
Volt	:	+-	0.060
Prestroke solenoid	i		
Stroke mm	:		8.00
Del. quantity			
cm3/1000 strokes	:		40.0
Tolerance			
cm3/1000 strokes	:	+	5.0
Spreed			
Tolerance			
cm3/1000 strokes	:		6.0
Check tolerance			
cm3/1000s.	:		9.0

# STARTING FUEL DELIVERY

Rated speed rpm	:	100
Uact V	:	1.900
Prestroke solenoi	d	
Stroke mm		10.00
Del. quantity		
cm3/1000 strokes	:	117.0
Tolerance		
cm3/1000 strokes	: +	- 10.0
Check tolerance		
cm3/1000S.	: +	- 20.0

### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 22.01.97 : ISO 4113

Combination No. : 0 402 698 033F3

Injection pump

Pump designation : PE8H120/320LS3-2

EP type number

Governor

Governer design. : RE36 (FD 66214 - FD

: 66231)

Governer no.

Cust, part No. : 0250745602

Customer-spec. information Customer

Motor

: MB-NFZ : CM 442 LA

# TEST BENCH REQUIREMENTS

Inlat line : 3.2 ELAB

Test oil inlet

temp. °C

Tolerance °C

: - 2.0

Overflow valve : 2 417 413 082

Inlet press. bar :

3.5

Tolerance bar

: + 0.1

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

bar

208.5

Tolerance bar

: +- 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

REMARKS

3.0

600

x inside diameter:

x length mm :

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS No basic setting.

Setting of constant delivery

under Section C.

BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar :  $\leftarrow$  1.0

Prestroke mm : 7.90 Tolerance mm : ← 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm: 10.50 Tolerance mm : <del>←</del> 0.50

: 8-7-2-6-3 Firing order

: - 4- 1

Phasing : 0-45-90-135-180

: -270-315

Tolerance : ← 0.50

Check

tolerance \*NW : + 0.75

Start of delivery mark

Tolerance : **←** 0.50

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Barrel no. : 8

(B) POSITIONER TESTING Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENS POSITION	OR
Engine speed min-1: 0	
Setting point (P, R and H pump)	
Uact V : 3.100 CRT mm : 13.00 Tolerance mm : +/- 0.05 Cneck	
tolerance mm : +/- 0.10	
Check value (P, R and H pump)	
Uact V : 1.700 CRT mm : 6.15 Tolerance mm : +/- 0.25 Check tolerance mm : +/- 0.30	
Setting point (M pump)	
Uact V : 3.100 CRT mm : 12.50 Tolerance mm : +/- 0.05 Check tolerance mm : +/- 0.10	
Check value (M pump)	
Uact V : 1.700 CRT mm : 5.50 Tolerance mm : +/- 0.25 Check	

## Stop position

Uact V	: Value with
	deenergised adjusting magnet
	and control rod in

stop position.

CRT mm : 0.75 Tolerance mm : +/- 0.25

tolerance mm :  $\pm -0.30$ 

Check

tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR (All P and R pumps not H and M pumps)

Test with control rod in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600

Difference

Amplitude to : max.1.4

# (C) INJECTION PUMP WITH POSITIONER

## TEST POINT VI

Rated speed rpm	:		750
Uact V Prestroke solenoid	:		2.800
Stroke mm	:		7.40
Del. quantity cm3/1000 strokes	•		344.0
Tolerance	•		4.0
cm3/1000 strokes Check tolerance	:	+	1.0
cm3/1000s.	:	+-	4.0
Spreed Tolerance			
cm3/1000 strokes	:		5.0
Check tolerance cm3/1000s.	:		9.0
	-		

### FUEL DELIVERY CHARACTERISTICS

Rated speed rpm Uact V	:		950 2.9 <b>00</b>
Prestroke solenoic Stroke mm Del. quantity	:		8.00
cm3/1000 strokes Tolerance	:		331.0
cm3/1000 strokes Check tolerance	:	+-	4.0
cm3/1000s.	:	+-	8.0
Rated speed rpm Uact V	: :		550 2.700
Vact V Prestroke solenoic Stroke mm	: : :		
Uact V Prestroke solenoic Stroke mm Del. quantity cm3/1000 strokes	: :		2.700
Uact V Prestroke solenoid Stroke mm Del. quantity		<b>+-</b>	<ul><li>2.700</li><li>9.50</li></ul>

# TEST POINT 1.1

Rated speed rpm	•		300
Uact V	•		1.500
Tolerance Volt	:	+	0.060
Check tolerance			
Volt	:	+	0.060
Prestroke solenoid			
Stroke mm	:		8.00
Del. quantity			
cm3/1000 strokes	:		34.0
Tolerance			
cm3/1000 strokes	:	+-	3.0
Spreed			
Tolerance			
cm3/1000 strokes	:		6.0
Check tolerance			
cm3/1000S.	:		9.0

# STARTING FUEL DELIVERY

Rated speed rpm	:	100
Uact V	:	1.900
Prestroke solenoi	d	
Stroke mm	:	10.00
Del. quantity		
cm3/1000 strokes	:	111.0
Tolerance		
cm3/1000 strokes	: +	- 10.0
Check tolerance		
cm3/1000S.	; +	- 20.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 17.01.97 : ISO 4113 Test oil

Combination No. : 0 402 698 804

Injection pump

Pump designation : PE8P120A720LS7205 EP type number : 0 412 628 895

Governor

Governer design. : RE30

Governer no. : 0 421 890 007

Cust. part No. : 1328039

Customer-spec. information Customer : SCANIA

: DSC1409, DSC1416 Motor

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C 40 Tolerance °C

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 104 assembly

Opening pressure

: 251.5 bar Tolerance bar : +- 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

#### REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS No basic setting. Setting of constant delivery under Section C.

### BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 5.05 Tolerance mm : +- 0.05 Check tolerance mm : + 0.10

Rack travel in mm: 10.50 Tolerance mm : + 1.50

Firing order : 1-2-7-3-4 : - 6- 8

Phasing : 0-45-90-135-180 : -270-315

Tolerance : + - 0.50

Check

tolerance \*NW : + 0.75

## Start of delivery mark

: **←** 0.10 Tolerance

Check

tolerance \*NW : **←** 0.75

Barrel no. : 1

Vibration damper

(RoBo diaphragm) : 3.2

(B) POSITIONER TESTING Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 VTESTING & SETTING RACK TRAVEL SENSOR POSITION Engine speed min-1: Setting point (P, R and H pump) : 3.100 : 13.00 Uact V CRT mm Tolerance mm : +/- 0.05 Check tolerance mm : +/- 0.10 Check value (P, R and H pump) 1.700 Uact V CRT mm 6.15 : +/- 0.25 Tolerance mm Check : +/- 0.30 tolerance mm Setting point (amua M) • 3.100 Uact V CRT mm 12.50 Tolerance mm : +/- 0.05 Check tolerance mm : +/- 0.10 Check value (M pump) 1.700 Uact V CRT mm 5.50 : +/- 0.25 Tolerance mm Check : +/- 0.30 tolerance mm Stop position Uact V : Value with deenergised adjusting magnet and control rod in stop position. : 0.75 CRT mm

: +/~ 0.25

: +/~ 0.35

ENGINE-SPEED SENSOR (All P and R pumps not H and M pumps) Test with control rod in stop position Engine speed min-1: 60 Amplitude V : 1.4 Tolerance V : +/- 0.6 Check tolerance V : +/- 1.20 Engine speed min-1: 600 Difference Amolitude to Amplitude V : max.1.4 (C) INJECTION PUMP WITH POSITIONER TEST POINT V1 Rated speed rpm : 700 Uact V 3.000 Del. quantity cm3/1000 strokes : 248.0 Tolerance cm3/1000 strokes : +- 1.0Check tolerance cm3/1000s. : +- 4.0 Spreed Tolerance cm3/1000 strckes : 8.0 Check tolerance cm3/1000s. 12.0 FUEL DELIVERY CHARACTERISTICS Rated speed rpm : 950 Uact V 3.000 Del. quantity cm3/1000 strokes : 224.0 Tolerance cm3/1000 strokes :  $\leftarrow$  4.0 Check tolerance cm3/1000s.: +-6.0 TEST POINT L1 : 250 : 1.410 Rated speed rpm Uact V Tolerance Volt : **←** 0.060

Check tolerance

Del. quantity

cm3/1000 strokes : 16.0

: + 0.060

Volt

Check

Tolerance mm

tolerance ren

Tolerance cm3/1000 strokes : + 3.0 Spreed Tolerance cm3/1000 strokes :

4.0

Check tolerance cm3/1000s. 8.0

### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 21.01.97 Edition Test oil : ISO 4113

Combination No. : 0 402 746 6060

Injection pump

Pump designation : PES6P110A720RS7406 EP type number : 0 412 716 810

Governor

Governer design. : RQV300...1050PA1090

: 1K

Governer no. : 0 421 815 497

Cust. part No. : 9279607

Customer—spec. information Customer : LIEBHERR
Motor : D. 926 TI-Motor : D 926 TI-E Fower KW : 230.0

# TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

: 40 temp. °C Tolerance \*C : +- 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity

min. l/h : 125
Tolerance l/h : + 20.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

004

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.65
Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : ← 1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 : +- 0.30

Phasing Tolerance

Check

tolerance \*NW : + -0.50

### BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.85 Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 212.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance cm3/1000s.	: +- 4.0	CHIDE SLEEVE DOSTITON
Spreed		_ + GUIDE SLEEVE POSITION
Tolerance cm3/1000 strokes	: 5.0	control lever position degree : - 1 Rated speed rpm : 1179
Check tolerance cm3/1000s.	: 9.0	Rack travel in mm : 12.80 Tolerance mm : + 2.00
Rated speed rpm	: 500	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm		Rated speed rpm : 900
Tolerance mm Del. quantity	: <b>←</b> 0.10	+ Aneroid pressure + hPa : 1400
cm3/1000 strokes	: 30.0	+ Del. quantity
Tolerance		- cm3/1000 strokes : 2!2.0
cm3/1000 strokes	: <del>-</del> 3.0	+ Tolerance
Check tolerance cm3/1000s.	: +- 6.0	+ cm3/1000 strokes : +- 1.0 + Check tolerance
Spreed	. + 0.0	+ cm3/1000s. : +- 4.0
Tolerance		Spreed
cm3/1000 strokes	: 6.0	Tolerance
Check tolerance cm3/1000s.	: 10.0	+ cm3/1000 strokes : 5.0 + Check tolerance
(1157 (0003)	. 10.0	+ cm3/1000s. : 9.0
(B) SETTING OF IN WITH GOVERNOR	AECTION MONE.	CONTROL LEVER
		†
GUIDE SLEEVE TRAV	EL	control lever
GUIDE SLEEVE TRAV	: 1102	control lever position degree : 113.0 tolerance degree : +- 4.0
Rated speed rpm guide sleeve travel mm	: 1102 : 10.05	position degree : 113.0 tolerance degree : +- 4.0 RATED SPEED
Rated speed rpm guide sleeve	: 1102	position degree : 113.0 tolerance degree : + 4.0  RATED SPEED rack travel mm : 12.85
Rated speed rpm guide sleeve travel mm Tolerance mm	: 1102 : 10.05	position degree : 113.0 tolerance degree : +- 4.0 RATED SPEED
Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve	: 1102 : 10.05 : + 0.15 : 350	position degree : 113.0 tolerance degree : + 4.0  RATED SPEED rack travel mm : 12.85 Rated speed rpm : 935 Tolerance 1/min : + 5
Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm	: 1102 : 10.05 : + 0.15 : 350 : 1.86	position degree : 113.0 tolerance degree : + 4.0  RATED SPEED rack travel mm : 12.85 Rated speed rpm : 935 Tolerance 1/min : + 5  rack travel mm : 4.00
Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve	: 1102 : 10.05 : + 0.15 : 350 : 1.86 : + 0.20	position degree : 113.0 tolerance degree : + 4.0  RATED SPEED rack travel mm : 12.85 Rated speed rpm : 935 Tolerance 1/min : + 5
Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm	: 1102 : 10.05 : + 0.15 : 350 : 1.86	position degree : 113.0 tolerance degree : + 4.0  RATED SPEED rack travel mm : 12.85 Rated speed rpm : 935 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1085 Tolerance 1/min : + 15
Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve	: 1102 : 10.05 : + 0.15 : 350 : 1.86 : + 0.20 : 749	position degree : 113.0 tolerance degree : + 4.0  RATED SPEED rack travel mm : 12.85 Rated speed rpm : 935 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1085 Tolerance 1/min : + 15  rack travel mm : 0.50
Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm	: 1102 : 10.05 : + 0.15 : 350 : 1.86 : + 0.20	position degree : 113.0 tolerance degree : + 4.0  RATED SPEED rack travel mm : 12.85 Rated speed rpm : 935 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1085 Tolerance 1/min : + 15
Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm Tolerance mm	: 1102 : 10.05 : + 0.15 : 350 : 1.86 : + 0.20 : 749 : 6.11 : + 0.25	position degree : 113.0 tolerance degree : + 4.0  RATED SPEED rack travel mm : 12.85 Rated speed rpm : 935 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1085 Tolerance 1/min : + 15  rack travel mm : 0.50 Rated speed rpm : 1145
Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm	: 1102 : 10.05 : + 0.15 : 350 : 1.86 : + 0.20 : 749 : 6.11	position degree : 113.0 tolerance degree : + 4.0  RATED SPEED rack travel mm : 12.85 Rated speed rpm : 935 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1085 Tolerance 1/min : + 15  rack travel mm : 0.50 Rated speed rpm : 1145
Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm	: 1102 : 10.05 : + 0.15 : 350 : 1.86 : + 0.20 : 749 : 6.11 : + 0.25 : 480	position degree : 113.0 tolerance degree : + 4.0  RATED SPEED rack travel mm : 12.85 Rated speed rpm : 935 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1085 Tolerance 1/min : + 15  rack travel mm : 0.50 Rated speed rpm : 1145
Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm	: 1102 : 10.05 : + 0.15 : 350 : 1.86 : + 0.20 : 749 : 6.11 : + 0.25	position degree : 113.0 tolerance degree : + 4.0  RATED SPEED rack travel mm : 12.85 Rated speed rpm : 935 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1085 Tolerance 1/min : + 15  rack travel mm : 0.50 Rated speed rpm : 1145
Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm Rated speed rpm	: 1102 : 10.05 : + 0.15 : 350 : 1.86 : + 0.20 : 749 : 6.11 : + 0.25 : 480 : 3.75 : + 0.25	position degree : 113.0 tolerance degree : + 4.0  RATED SPEED rack travel mm : 12.85 Rated speed rpm : 935 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1085 Tolerance 1/min : + 15  rack travel mm : 0.50 Rated speed rpm : 1145 Tolerance 1/min : + 0.50  LOW IDLE
Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Tolerance mm	: 1102 : 10.05 : + 0.15 : 350 : 1.86 : + 0.20 : 749 : 6.11 : + 0.25 : 480 : 3.75 : + 0.25	position degree : 113.0 tolerance degree : + 4.0  RATED SPEED rack travel mm : 12.85 Rated speed rpm : 935 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1085 Tolerance 1/min : + 15  rack travel mm : 0.50 Rated speed rpm : 1145 Tolerance 1/min : + 0.50  LOW IDLE  control lever
Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm	: 1102 : 10.05 : + 0.15 : 350 : 1.86 : + 0.20 : 749 : 6.11 : + 0.25 : 480 : 3.75 : + 0.25 : 1330 : 13.50	position degree : 113.0 tolerance degree : + 4.0  RATED SPEED rack travel mm : 12.85 Rated speed rpm : 935 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1085 Tolerance 1/min : + 15  rack travel mm : 0.50 Rated speed rpm : 1145 Tolerance 1/min : + 0.50  LOW IDLE

Testing:	T	es	ti	na	:
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Rated speed rpm : 500 rack travel mm : 5.30 Tolerance mm : +- 0.10

Rated speed rpm : 350

CRT mm min. :>8.50

## TURQUE CONTROL

900 Rated speed rpm : rack travel mm : 13.85 : +- 0.05 Tolerance mm

: 500 : 13.00 Rated speed rpm rack travel mm : : +- 0.15 Tolerance mm

: 800 Rated speed rpm rack travel mm : 13.80 : +- 0.15 Tolerance mm

Rated speed rpm : 700 : **←** 0.15 Tolerance mm

: 600 Rated speed rpm : 13.50 rack travel mm : +- 0.15 Tolerance mm

ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 1050 Pressure hPa : 1400 rack travel mm 13.85 : +- 0.05 Tolerance mm

Pressure hPa Rated speed rpm : 1050 rack travel mm : 12.30 : **←** 0.15 Tolerance mm

#### MEASUREMENT

Rated speed rpm : 1050

Pressure hPa 1050 rack travel mm 13.30 Tolerance mm : +- 0.05

Pressure hPa : 910

rack travel mm : 12.75 : + 0.10 Tolerance mm

Start interlock

### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa 1400 Rated speed rom 500 Del. quantity

cm3/1000 strokes : 250.0

Tolerance

cm3/1000 strokes : +- 2.0

Check tolerance

cm3/1000s. : 4- 6.0

Aneroid pressure

hPa : 1400 Rated speed rpm : 800 Del. quantity

cm3/1000 strokes : 225.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  2.0

Check tolerance

cm3/1000s. 6.0

Aneroid pressure

hPa Rated speed rpm : 500

Del. quantity

cm3/1000 strckes : 228.0

Tolerance

cm3/1000 strokes : +-1.0

Check tolerance

cm3/1000s. : +--4.0

## STARTING FUEL DELIVERY

Rated speed rpm : rack travel mm : 100 10.55 Tolerance mm : +- 0.20 Del. quantity cm3/1000 strokes : 195.0 Tolerance cm3/1000 strokes :  $\leftarrow$  10.0

Check tolerance : + 14.0

cm3/1000s.

#### LOW IDLE

Rated speed rpm : 500

900

Del. quantity cm3/1000 strokes	:	30.0	
Tolerance cm3/1000 strokes Check tolerance	; +-	3.0	
cm3/1000s. Spreed	; <b>+</b> -	6.0	
Tolerance cm3/1000 strokes	:	6.0	
Check tolerance cm3/1000S.	:	10.0	

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.01.97 Test oil : ISO 4113

Combination No. : 0 402 746 627

Injection pump

Pump designation : PES6P120A720LS7262 EP type number : 0 412 726 918

Governor

Governer design. : RQV350...925PA1331

Governer no. : 0 421 814 190

Cust. part No. : 0240746202

Customer-spec. information Customer : MTU

Motor : 68133-02

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C : 40 Tolerence °C : + 2.0

Overflow valve : 2 417 413 047

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Overflow quantity

min. l/h : 110 Tolerance l/h : + 20.0

Test nozzle holde

assembly : 1 688 901 019

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : 4- 1.0

Prestroke mm : 4.02 Tolerance mm : ← 0.05

Check

tolerance mm : +- C.10

Rack travel in mm : 20.50 Tolerance mm : + 0.50

Firing order : 6-2-4-1-5-

: 3

Phasing : 0-60-120-180-240

Tolerance : + 0.30

Check

tolerance \*NW : +- 0.50

Start of delivery mark

Tolerance :  $\leftarrow$  0.10

Check

tolerance \*NW : +- 0.75

Barrel no. : 6

# BASIC SETTING

Rated speed rpm : 925

Rack travel in mm : 12.30 Tolerance mm : + 0.05

Del. quantity cm3/1000 strokes	: 261.0	Tolerance mm : +- 0.50
Tolerance cm3/1000 strokes	: + 1.0	GUIDE SLEEVE POSITION
CINST TOOU STROKES	<u> </u>	
Check tolerance cm3/1000s.	: + 4.0	control lever position degree : - 1
Spreed	<del></del> ‡	Rated speed rpm : 1055
Tolerance	†	Rack travel in mm : 11.30 Tolerance mm : - 2.00
cm3/1000 strokes	5.0	
Check tolerance cm3/1000s.	: 9.0	FULL LOAD DELIVERY AT FULL LOAD STOP
		Rated speed rpm : 925
	Į	Aneroid pressure hPa : 1200
Rated speed rpm	: 350	Del. quantity
Rack travel in mm	t 5.30 ±	cm3/1000 strokes : 261.0 Tolerance
Tolerance mm	1	cm3/1000 strokes : + 1.0
Del. quantity	+	Check tolerance
cm3/1000 strokes	: 21.0	cm3/1000s. : +- 4.0
Tolerance cm3/1000 strokes	: ← 3.0	Spreed Tolerance
Check tolerance		cm3/1000 strokes : 5.0
cm3/1000s.	: + 6.0	Check tolerance
Spreed	+	cm3/1000s. : 9.0
Tolerance cm3/1000 strokes	: 8.0	
Check tolerance	· I	
cm3/1000s.	: 12.0	CONTROL LEVER
	+	control lever
(B) SETTING OF IN	JECTION PUMP +	position degree : 118.0
WITH GOVERNOR	<u> </u>	tolerance degree : +- 4.0
		RATED SPEED
GUIDE SLEEVE TRAV	EL +	rack travel mm : 11.30
<b>9</b> -4 : 1 1	+	Rated speed rpm : 975
Rated speed rpm guide sleeve	: 988	Tolerance 1/min : ← 5
travel mm	: 8.65	rack travel mm : 4.00
Tolerance mm	: ← 0.15 +	Rated speed rpm : 1055
Rated speed rpm	: 350	Tolerance 1/min : +- 15
guide sleeve	. 330	rack travel mm : 0.50
travel mm	: 1.48 +	Tolerance mm : ← 0.50
Tolerance mm	: ← 0.20	Rated speed rpm : 1250
Rated speed rpm	: 485 I	
guide sleeve	+	
travel mm	: 3.02	101.701.7
Tolerance mm	: ← 0.25	LOW IDLE
Rated speed rpm	: 1160	
guide sleeve	+	control lever
travel mm	: 11.50 +	position degree : 65.0

tolerance degree	: <b>←</b> 4.0	† Check	. 00
Testing:		+ speed 1/min + Check	: > 80
resenig.		speed 1/min	: < 290
Rated speed rpm	: 350	Speed 17 mill	
rack travel mm	: 5.30		
rack travel mm Tolerance mm	: +- 0.10	FUEL DELIVERY CH	ARACTERISTICS
Rated speed rpm	: 250	Aneroid pressure	
		+ hPa	: 1200
CRT mm min.	: > 7.50	+ Rated speed rpm	: 750
Dahad aread non	. /50	+ Del. quantity	257.0
Rated speed rpm	: 450	cm3/1000 strokes Tolerance	: 257.0
			• +- 20
TORQUE CONTROL		Check tolerance	2.0
		cm3/1000s.	: <del>+-</del> 5.0
Rated speed rom	: 925 : 12.30	Spreed	
rack travel mm Tolerance mm	: 12.30	+ Tolerance	
Tolerance mm	: <b>←</b> 0.05	cm3/1000 strokes	
Dahad seed ex	. 750	+ Check tolerance	
Rated speed rpm	: /50	+ cm3/1000s.	: 14.0
rack travel mm Tolerance mm	: + 0.10	Aneroid pressure	
TOCCI GITICE THIS	0.10	+ hPa	• -
			500
ANEROID/ALTITUDE		+ Del. quantity	
COMPENSATOR TEST		+ cm3/1000 strokes	: 132.5
		- Tolerance	
		+ cm3/1000 strokes	: +- 1.0
SETTING		+ Check tolerance	
Rated speed rpm	: 600	+ cm3/1000s. + Spreed	: +- 4.0
Pressure nPa		+ Tolerance	
rack travel mm		+ cm3/1000 strokes	: 10.0
Tolerance mm		- Check tolerance	
		+ cm3/1000s.	: 14.0
Pressure hPa	: -	+	
Reted speed rom	: 600	1	
rack travel mm	: 8.05 : +- 0.15	STADIANC FUEL DE	TVEDV
Tolerance mm	: +- 0.15	T STARTING FUEL DE	TIVERT
MEASUREMENT		Rated speed rpm	: 100
		+ rack travel mm	
Rated speed rpm	: 600	+ Tolerance mm	
		+ Del. quantity	
Pressure hPa	: 300	+ cm3/1000 strokes	: 390.0
rack travel mm	: 8.90 - 0.05	+ Tolerance	10 0
Tolerance mm	: <b>←</b> 0.05	+ cm3/1000 strokes + Check tolerance	: TO.U
Pressure hPa	: 800	- check toterance - cm3/1000s.	: +- 24.0
rack travel mm	: 11.65	1	
Tolerance mm	: <b>-</b> 0.15	†	
Start interlock		LOW IDLE	
Rated speed rpm	: > 100	I COM TOLE	
Rated speed rpm		Rated speed rpm	: 350
THE PERSON OF TH		Del. quantity	· ••••
		+ cm3/1000 strokes	: 21.0
		•	

Tolerance cm3/1000 strokes	: +-	3.0
Check tolerance cm3/1000s. Spreed	; +-	6.0
Tolerance cm3/1000 strokes	:	8.0
Check tolerance cm3/1000s.	:	12.0

#### Note memarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.01.97 Test oil : ISO 4113

Combination No. : 0 402 746 996

Injection pump

Pump designation : PES6P120A720LS7262

EP type number : 0 412 726 918

Governor

Governer design. : RQV350...1050PA1040

Governer no. : 0 421 814 007

Cust. part No. : 0250746002

Customer-spec. information Customer : MTU

Motor : 6R183-02 Power KW : 370.0

### TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp.  $^{\circ}$ C :  $^{4}$ C Tolerance  $^{\circ}$ C :  $\leftarrow$  2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5 Tolerance per : + 0.1

Overflow quantity

min. L/h : 100 Tolerapice L/h : + 20.0

Test nozzle holde

assembly : 1 688 901 019

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 1000

### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.05 Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 20.50 Tolerance mm : + 0.50

Firing order : 6-2-4-1-5-

: 3

Phasing : 0-60-120-180-240

Tolerance : + 0.30

Check

tolerance \*NW : +- 0.50

Start of delivery mark

Tolerance :  $\leftarrow$  0.10

Check

tolerance \*NW : +- 0.50

Barrel no. : 6

### BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.95
Tolerance mm : + 0.05

Del. quantity	+ Tolerance mm : $+$ 0.25
cm3/1000 strokes : 331.0	t
	+ Rated speed rpm : 454
Tolerance	+ guide sleeve
$cm3/1000$ strokes : $\leftarrow$ 1.0	† travel mm : 3.08
	→ Tolerance man : +- 0.25
Check tolerance	1
cm3/1000s. : +- 4.0	Rated speed rpm : 570
***************************************	+ guide sleeve
Spreed	travel mm : 3.57
opreed	
Tolerance	+ Tolerance mm : + 0.25
	<b>T D L L L L L L L L L L</b>
cm3/1000 strokes : 5.0	+ Rated speed rpm : 1204
	+ guide sleeve
Check tolerance	+ travel mm : 10.00
cm3/1000s. : 9.0	+ Tolerance mm : + 0.25
	<del>1</del>
	+ Rated speed rpm : 1300
	- guide sleeve
Rated speed rpm : 350	+ travel mm : 11.50
THE SECOND IN SECOND	Tolerance mm : +- 0.50
Rack travel in mm : 4.90	T TOTAL GIVE IN 1. TO 0.30
	· · · · · · · · · · · · · · · · · · ·
	CHANG OF EACH
Del. quantity	+ GUIDE SLEEVE POSITION
cm3/1000 strokes : 20.0	†
Tolerance	+
$cm3/1000$ strokes : $\leftarrow$ 3.0	+ control lever
Check tolerance	<pre> position degree : − 1 </pre>
$cm3/1000s$ . : $\leftarrow$ 6.0	+ Rated speed rpm : 1170
Spreed	
Tolerance	Rack travel in mm: 13.00
cm3/1000 strokes : 8.0	+ Tolerance mm : +- 1.30
Check tolerance	T Total and . += 1.50
cm3/1000s. : 12.0	
	+ FULL LOAD DELIVERY AT FULL LOAD STOP
	†
(B) SETTING OF INJECTION PUMP	+ Rated speed rpm : 1050
WITH GOVERNOR	+ Aneroid pressure
	→ hPa : 1600
	+ Del. quantity
GUIDE SLEEVE TRAVEL	+ cm3/1000 strokes : 331.0
	Tolerance
	T IULEI ante
Rated speed rpm : 1107	
Rated speed rpm : 1107	+ cm3/1000 strokes : + 1.0
guide steeve	+ cm3/1000 strokes : + 1.0 + Check tolerance
guide sleeve travel mm : 8.03	+ cm3/1000 strokes : + 1.0 + Check tolerance + cm3/1000s. : + 4.0
guide steeve	+ cm3/1000 strokes : + 1.0 + Check tolerance + cm3/1000s. : + 4.0 + Spreed
guide steeve travel mm : 8.03 Tolerance mm : ← 0.20	+ cm3/1000 strokes : + 1.0 + Check tolerance + cm3/1000s. : + 4.0 + Spreed + Tolerance
guide steeve travel mm : 8.03 Tolerance mm : + 0.20  Rated speed rpm : 350	+ cm3/1000 strokes : + 1.0  - Check tolerance - cm3/1000s. : + 4.0  - Spreed - Tolerance - cm3/1000 strokes : 5.0
guide steeve travel mm : 8.03 Tolerance mm : + 0.20  Rated speed rpm : 350 guide steeve	+ cm3/1000 strokes : + 1.0  Check tolerance cm3/1000s. : + 4.0  Spreed Tolerance cm3/1000 strokes : 5.0  Check tolerance
guide steeve travel mm : 8.03 Tolerance mm : + 0.20  Rated speed rpm : 350 guide steeve travel mm : 1.53	+ cm3/1000 strokes : + 1.0  - Check tolerance - cm3/1000s. : + 4.0  - Spreed - Tolerance - cm3/1000 strokes : 5.0
guide steeve travel mm : 8.03 Tolerance mm : + 0.20  Rated speed rpm : 350 guide steeve	+ cm3/1000 strokes : + 1.0  Check tolerance cm3/1000s. : + 4.0  Spreed Tolerance cm3/1000 strokes : 5.0  Check tolerance
guide steeve travel mm : 8.03 Tolerance mm : + 0.20  Rated speed rpm : 350 guide steeve travel mm : 1.53	+ cm3/1000 strokes : + 1.0  Check tolerance cm3/1000s. : + 4.0  Spreed Tolerance cm3/1000 strokes : 5.0  Check tolerance
guide steeve travel mm : 8.03 Tolerance mm : + 0.20  Rated speed rpm : 350 guide steeve travel mm : 1.53 Tolerance mm : + 0.15	+ cm3/1000 strokes : + 1.0  Check tolerance cm3/1000s. : + 4.0  Spreed Tolerance cm3/1000 strokes : 5.0  Check tolerance
guide sleeve travel mm : 8.03 Tolerance mm : 0.20  Rated speed rpm : 350 guide sleeve travel mm : 1.53 Tolerance mm : + 0.15  Rated speed rpm : 900	- cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0
guide sleeve travel mm : 8.03 Tolerance mm : 40.20  Rated speed rpm : 350 guide sleeve travel mm : 1.53 Tolerance mm : 40.15  Rated speed rpm : 900 guide sleeve	+ cm3/1000 strokes : + 1.0  Check tolerance cm3/1000s. : + 4.0  Spreed Tolerance cm3/1000 strokes : 5.0  Check tolerance
guide sleeve travel mm : 8.03 Tolerance mm : 4 0.20  Rated speed rpm : 350 guide sleeve travel mm : 1.53 Tolerance mm : 4 0.15  Rated speed rpm : 900 guide sleeve travel mm : 5.69	cm3/1000 strokes : \( \dagger \) 1.0  Check tolerance  cm3/1000s. : \( \dagger \) 4.0  Spreed  Tolerance  cm3/1000 strokes : 5.0  Check tolerance  cm3/1000s. : 9.0  CONTROL LEVER
guide sleeve travel mm : 8.03 Tolerance mm : 40.20  Rated speed rpm : 350 guide sleeve travel mm : 1.53 Tolerance mm : 40.15  Rated speed rpm : 900 guide sleeve	cm3/1000 strokes : \( \dots \) 1.0 Check tolerance cm3/1000s. : \( \dots \) 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0  CONTROL LEVER control lever
guide steeve travel mm : 8.03 Tolerance mm : + 0.20  Rated speed rpm : 350 guide steeve travel mm : 1.53 Tolerance mm : + 0.15  Rated speed rpm : 900 guide steeve travel mm : 5.69 Tolerance mm : + 0.25	cm3/1000 strokes : \( \dots \) 1.0 Check tolerance cm3/1000s. : \( \dots \) 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0  CONTROL LEVER  control lever position degree : 118.0
guide steeve travel mm : 8.03 Tolerance mm : + 0.20  Rated speed rpm : 350 guide steeve travel mm : 1.53 Tolerance mm : + 0.15  Rated speed rpm : 900 guide steeve travel mm : 5.69 Tolerance mm : + 0.25  Rated speed rpm : 404	cm3/1000 strokes : \( \dots \) 1.0 Check tolerance cm3/1000s. : \( \dots \) 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0  CONTROL LEVER control lever
guide steeve travel mm : 8.03 Tolerance mm : + 0.20  Rated speed rpm : 350 guide steeve travel mm : 1.53 Tolerance mm : + 0.15  Rated speed rpm : 900 guide steeve travel mm : 5.69 Tolerance mm : + 0.25  Rated speed rpm : 404 guide steeve	cm3/1000 strokes : \( \dots \) 1.0 Check tolerance cm3/1000s. : \( \dots \) 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0  CONTROL LEVER  control lever position degree : 118.0 tolerance degree : \( \dots \) 4.0
guide steeve travel mm : 8.03 Tolerance mm : + 0.20  Rated speed rpm : 350 guide steeve travel mm : 1.53 Tolerance mm : + 0.15  Rated speed rpm : 900 guide steeve travel mm : 5.69 Tolerance mm : + 0.25  Rated speed rpm : 404	cm3/1000 strokes : \( \dots \) 1.0 Check tolerance cm3/1000s. : \( \dots \) 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0  CONTROL LEVER  control lever position degree : 118.0

rack travel mm Rated speed rpm	: 13.00 : 1095		† Tolerance
Tolerance 1/min			MEASUREME
rack travel mm Rated speed rpm	: 4.00 : 1180		Rated spe
Tolerance 1/min	: + 15		Pressure rack trav
rack travel mm Tolerance mm	: +- 0.50		Tolerance
Rated speed rpm	: 1250		Pressure rack trav Tolerance
LOW IDLE			Start int
TOW TOLL		-	Rated spe
control lever position degree tolerance degree	: 64.0 : + 4.0		Check speed 1/m
Testing:			+ Check + speed 1/m
Rated speed rpm	: 350		‡
rack travel mm Tolerance mm	: 4.90 : + 0.10		+ FUEL DELI +
Rated speed rpm	: 250		+ Aneroid p + hPa
CRT mm min.	: > 7.20		Rated spe Del. quar cm3/1000
Rated speed rpm	: 450		Tolerance cm3/1000
TORQUE CONTROL		-	Check tol
Rated speed rpm	: 1050		+ Spreed + Tolerance
rack travel mm Tolerance mm	: 13.95 : + 0.05		- cm3/1000 - Check tol - cm3/1000s
Rated speed rpm	: 750		+
rack travel mm Tolerance mm	: 13.95 : + 0.10		+ Aneroid p + hPa - Rated spe
ANEROID/ALTITUDE			Del. quan cm3/1000
COMPENSATOR TEST			Tolerance
SETTING			Check tol cm3/1000s Spreed
Rated speed rpm Pressure hPa	: 500 : 1600		Tolerance
rack travel mm Tolerance mm	: 13.95 : + 0.10		Check tol
Pressure hPa Rated speed rpm	: - : 500		
rack travel mm	: 7.60		STARTING

Tolerance mm	: <b>+-</b> 0.20
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa rack travel mm Tolerance mm	: 1200 : 13.65 : ← 0.05
Pressure hPa rack travel mm Tolerance mm	: 400 : 9.35 : ← 0.15
Start interlock	
Rated speed rpm Rated speed rpm	: > 230 : < 290
Check speed 1/min	: > 210
Check speed 1/min	: < 310
FUEL DELIVERY CHA	RACTERISTICS
hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000s. Aneroid pressure hPa Rated speed rpm	: ← 3.0 : ← 6.0
Del. quantity cm3/1000 strokes	: 132.0
Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: + 1.0 : + 4.0 : 8.0 : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 400.0
Tolerance
cm3/1000 strokes : ÷ 15.0
Check tolerance
cm3/1000s. : + 19.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 20.0
Tolerance
cm3/1000 strokes : + 3.0
Check tolerance
cm3/1000s. : + 6.0
Epreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000s. : 12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.04.96 Test oil : ISO 4113

Combination No. : 0 403 446 249

Injection pump

Pump designation : PES6MW100/720RS1197

EP type number : 0 413 406 185

Governor

Governer design. : RQV325...1350MW109K

Governer no. : 0 420 083 997

Cust. part No. :

Customer—spec. information
Customer : IVECO-FIAT
Motor : 8060.45.6000

Power KW : 169.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 1.5

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 31.0 Tolerance bar : + 1.0

Prestroke mm : 4.05
Tolerarice mm : + 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 10.50 Tolerance mm : - 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

Tolerance : +- 0.50

Check

tolerance \*NW : +- 0.75

BASIC SETTING

Rated speed rpm : 1350

Rack travel in mm : 14.05

Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 102.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : + 3.0

Spreed

<b>-</b> 1	
Tolerance +	Data day and a second 4440
cm3/1000 strokes : 3.5	Rated speed rpm : 1640
Check tolerance	guide sleeve
cm3/1000s. : 6.0	travel mm : 13.50
timo/ 10005. ; 6.0	Tolerance mm : + 0.50
<u></u> Ţ	
I	GUIDE SLEEVE POSITION
Rated speed rpm : 330	3010E 3EEEVE 1 031110N
The special sp	
Rack travel in mm: 8.20	control lever
Tolerance mm : + 0.10	position degree : - 1
Del. quantity	Rated speed rpm : 1475
cm3/1000 strokes : 27.0 +	·
Tolerance +	Rack travel in mm : 13.00
cm3/1000 strokes : +- 2.0 +	Toleranse mm : +- 2.00
Check tolerance	
cm3/1000s. : +- 4.5	
Spreed	FULL LOAD DELIVERY AT FULL LOAD STOP
Tolerance + cm3/1000 strokes : 3.5	Dated aread area 4750
Check tolerance	Rated speed rpm : 1350 Aneroid pressure
cm3/1000s. : 5.5	hPa : 850
I	Del. quantity
1	cm3/1000 strokes : 102.0
(B) SETTING OF INJECTION PUMP	Tolerance
WITH GOVERNOR	cm3/1000 strokes : +- 1.0
1	Check tolerance
	cm3/1000s. : +- 3.0
GUIDE SLEEVE TRAVEL	Spreed
+	Tolerance
Rated speed rpm : 1411	cm3/1000 strokes : 3.5
guide sleeve	Check tolerance
travel mm : 10.31	cm3/1000s. : 6.0
Tolerance mm : + 0.25	
Rated speed rpm : 325	
guide sleeve	CONTROL LEVER
travel mm : 1.90	CONTROL LEVER
Tolerance mm : + 0.25	control lever
	position degree : 120.0
Rated speed rpm : 832	tolerance degree : + 4.0
guide sleeve	
travel mm : 5.05	RATED SPEED
Tolerance mm : + 0.25	rack travel mm : 13.00
+	Rated speed rpm : 1440
Rated speed rpm : 346	Tolerance 1/min : + 5
guide sleeve	
travel mm : 2.27 +	rack travel mm : 4.00
Tolerance mm : + 0.25	Rated speed rpm : 1550
Rated speed rpm : 396	Tolerance 1/min : +- 15
Rated speed rpm : 396 + guide sleeve +	rack travel mm : 0.50
travel mm : 3.13	Tolerance mm : +- 0.50
Tolerance mm : + 0.25	Rated speed rpm : 1650
Rated speed rpm : 380	
guide sleeve	
travel mm : 3.01	
tiavet iiiii . J.ui	
Tolerance mm : + 0.25	LOW IDLE

		T Fressure nea	: 350
		rack travel mm Tolerance mm	: 12.35 : +- 0.05
control lever		† Tolerance mm	: +- 0.05
position degree	: 82.0	+	
tolerance degree	: <del></del> 4.0	Start interlock	
		+	
Testing:		→ Rated speed rpm	: > 265
_		+	
Rated speed rpm	: 330	+ Check	
rack travel mm	: 8.20	speed 1/min	: > 275
rack travel mm Tolerance mm	: + 0.10	1	213
rocci arree min		I	
Rated speed rpm	. 200	FUEL DELIVERY CHA	DACTEDICTICS
raced speed rpill	. 200	T TOEL DELIVERT CHA	INACTERISTICS
CRI mm min.	: > 10.00	T Amounted management	
Sect that drift.	. > 10.00	† Aneroid pressure	. 950
		hPa	: 850
700015 0015001		+ Rated speed rpm	: 1200
TORQUE CONTROL		+ Del. quantity	400
-	4370	+ cm3/1000 strokes	: 102.0
Rated speed rpm	: 1350	+ Tolerance	
rack travel mm	: 14.05	+ cm3/1000 strokes	: +- 1.5
rack travel mm Tolerance mm	: <del></del> 0.05	+ Check tolerance	
		+ cm3/1000s.	: +- 4.0
Rated speed rpm	: 1200	Spreed	- <del>-</del>
rack travel mm	: 13.70	Tolerance	
rack travel mm Tolerance mm	: +- 0.10	+ cm3/1000 strokes	: 5.0
		Check tolerance	. 2.0
Rated speed rpm	• 1000	- cm3/1000s.	; 7.0
		T 10003.	
rack travel mm	. 13.33 0.45	T Amanadal massas is	
Tolerance mm	; <del></del> 0.15	† Aneroid pressure	
Bakad and Land	700	+ hFa	: 850
Rated speed rpm rack travel mm	: 700	+ Rated speed rpm	: 1000
rack travel mm Tolerance mm	: 13.40	+ Del. quantity	
Tolerance mm	: ← 0.10	+ cm3/1000 strokes	: 102.0
		+ Tolerance	
		+ cm3/1000 strokes	: + 1.5
ANEROID/ALTITUDE		- Check tolerance	
COMPENSATOR TEST		- cm3/1000s.	: +- 4.0
		1	
		+ Aneroid pressure	
SETTING		+ hPa	: 850
V611517V		Rated speed rpm	: 700
Rated speed rpm	: 500	Del. quantity	. 100
Pressure hPa	: 850	cm3/1000 strokes	: 106.0
			. 100.0
rack travel mm	: 13.50	+ Tolerance	
Tolerance mm	: <b>←</b> 0.10	+ cm3/1000 strokes	: +- 1.5
4 -		+ Check tolerance	
Pressure hPa	-	+ cm3/1000s.	: +- 4.0
Rated speed rpm	: 500	†	
rack travel mm	: 11.40	+ Aneroid pressure	
Tolerance mm	: +- 0.05	+ hPa	: -
		+ Rated speed rpm	: 500
MEASUREMENT		+ Del. quantity	-
· · · · · · · · · · · · · · · ·		+ cm3/1000 strokes	: 76.5
Rated speed rpm	: 500	+ Tolerance	• • • • • • • • • • • • • • • • • • • •
opeca ipii		cm3/1000 strokes	: <b>←</b> 1.0
	550	Check tolerance	1.0
Draceura hos	• 550	T UNEUK LOTELANCE	
Pressure hPa	: 550		7.0
Pressure hPa rack travel mm Tolerance mm	: 550 : 13.45 : + 0.15	- cm3/1000s.	: <del>←</del> 3.0

+ Pressure hPa : 350

## STARTING FUEL DELIVERY

Rated speed rpm : 100

## WARM-START DELIVERY

100 Rated speed rpm :

Del. quantity cm3/1000 strokes : 65.0

Tolerance

cm3/1000 strokes : +- 10.0

Check tolerance

cm3/1000s. : + 13.0

## COLD-START DELIVERY

Rated speed rpm : 100

Del. quantity

cm3/1000 strokes : 105.0

Tolerance

cm3/1000 strokes : +- 8.0

Check tolerance

cm3/1000s.: + 10.0

## LOW IDLE

330 Rated speed rpm

Del. quantity

cm3/1000 strokes : 27.0

Tolerance

cm3/1000 strokes : +- 2.0

Check tolerance

cm3/1000s. 4.5

Spreed

Tolerance

cm3/1000 strokes : 3.5

Check tolerance

cm3/1000s. 5.5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 27.01.97 Edition Test oil : 27.01.97

Combination No. : 0 400 464 119

Injection pump

Pump designation : PES4A75D410/3RS1255

EP type number : 0 410 474 966

Governor

Governer design. : RSV325...1400A86495L

Governer no. : 0 420 232 302

Cust. part No. :

Customer-spec. information Customer : KHD : F4L912 Motor

### TEST BENCH REQUIREMENTS

Inlet line : 1.3

Test oil inlet

temp. °C temp. °C : 40 Tolerance °C : +- 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly : 0 681 343 009

Opening pressure

: 173.5 bar Tolerance bar : +- 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 1.95 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm: 10.50 Tolerance mm : ← 1.50

Firing order : 1-3-4-2

Phasing Tolerance : 0-90-180-270 : +- 0.50

Check

tolerance \*NW : +- 0.75

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 10.20

Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 44.0

Tolerance

cm3/1000 strokes : + 1.5

Check tolerance

cm3/1000s. : +- 3.0

Spreed

Tolerance

cm3/1000 strokes : 3.5

D20

Check tolerance cm3/1000s. : 7.0	†
cm3/1000s. : 7.0	CONTROL LEVER
Rated speed rpm : 325	control lever position degree : 119.0 tolerance degree : + 4.0
Rack travel in mm : 9.00 Tolerance mm : ← 0.10	RATED SPEED
Del. quantity cm3/1000 strokes : 11.0	rack travel mm : 9.20
Tolerance	Rated speed rpm : 1445 Tolerance 1/min : + 5
cm3/1000 strokes : +- 1.5 Check tolerance	rack travel mm : 4.00
cm3/1000s. : +- 3.5 Spreed	Rated speed rpm : 1485 Tolerance 1/min : +- 15
Tolerance cm3/1000 strokes : 4.0	rack travel mm : 0.85
Check tolerance cm3/1000S. : 6.0	Tolerance mm : +- 0.55 Rated speed rpm : 1700
(B) SETTING OF INJECTION PUMP	rack travel mm : 4.00 Rated speed rpm : 1495
WITH GOVERNOR	Rated Speed (pill . 149)
GUIDE SLEEVE POSITION	LOW IDLE
control lever	t control lever
position degree : - 3 Rated speed rpm : 800	tolerance degree : 70.0 + 4.0
Rack travel in mm : 0.50 Tolerance mm : - 0.20	Setting point w/out bumper spring
governor spring	+ Rated speed rpm : 325 + rack travel mm : 8.50
pre-tension click setting x : 5.50	Tolerance mm : + 0.10
	Testing:
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 325
Rated speed rpm : 1400 Aneroid pressure	rack travel mm : 9.00 Tolerance mm : +- 0.10
hPa : - Del. quantity	rack travel mm : 2.00 Rated speed rpm : 700
cm3/1000 strokes : 44.0 Tolerance	Tolerance 1/min : + 30
cm3/1000 strokes : +- 1.5 Check tolerance	TORQUE CONTROL
cm3/1000s. : +- 3.0	+
Spreed Tolerance	+ Rated speed rpm : 1400 + rack travel mm : 10.20
cm3/1000 strokes : 3.5 Check tolerance	Tolerance mm : +- 0.05
cm3/1000s. : 7.0	+ Rated speed rpm : 500 + rack travel mm : 11.55
	+ Tolerance mm : + 0.05

Rated speed rpm : 955
rack travel mm : 10.90
Tolerance mm : +- 0.10

Start interlock

# STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.25 Tolerance mm : + 0.75 Del. quantity

cm3/1000 strokes : 110.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  7.5

Check tolerance

cm3/1000s. : +- 10.0

## LOW IDLE

Rated speed rpm : 325
Del. quantity
cm3/1000 strokes : 11.0
Tolerance
cm3/1000 strokes : + 1.5
Check tolerance
cm3/1000s. : + 3.5
Spreed

Tolerance

cm3/1000 strokes : 4.0

Check tolerance

cm3/1000s. : 6.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 27.01.97 Edition Test oil : ISO 4113

Combination No. : 0 400 836 018

Injection pump

Pump designation : PES6A80D410/3RS2527 EP type number : 0 410 886 059

Governor

Governer design. : RQ275/1400AB798DL Governer no. : 0 420 202 239

Cust, part No. :

Customer-spec. information Customer : KHD : F6L912 Motor Power KW : 88.3

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C ÷ + 2.0 Tolerance °C

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

: 0 681 343 009 assembly

Opening pressure

: 173.5 bar Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

: 1.95 : ← 0.05 Prestroke mm Tolerance mm Check tolerance mm : + 0.10

Rack travel in mm : 10.50Tolerance mm : + 1.50

Firing order : 1-5- 3- 6- 2-

Phasing : 0-60-120-180-240
Tolerance : + 0.50

Check

tolerance \*NW :  $\leftarrow$  0.75

# BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 11.65
Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 65.5

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.5

Check tolerance cm3/1000s. : <del>+-</del> 3.0

Spreed

<b>+</b> 1				
Tolerance cm3/1000 strokes :	3.5	Check tolerance cm3/1000s.	: 7.0	
Check tolerance cm3/1000s. :	7.0	RATED SPEED rack travel mm Rated speed rpm	: 1453	
Rated speed rpm :	275	Tolerance 1/min		
Rack travel in mm : Tolerance mm :		rack travel mm Rated speed rpm Tolerance 1/min	: 1550	
Del. quantity cm3/1900 strokes : Tolerance	12.0	rack travel mm Tolerance mm	: 9.50 : ← 0.50	
cm3/1000 strokes : Check tolerance	+ 1.5	Rated speed rpm		
	+ 3.5			
Tolerance cm3/1000 strokes :	4.0	LOW IDLE		
Check tolerance cm3/1000s. :	6.0	Testing:		
(B) SETTING OF INJECTION OF INJ	CTION PUMP	Rated speed rpm rack travel mm Tolerance mm	: 275 : 8.70 : + 0.05	
GUIDE SLEEVE TRAVEL Dimension a mm :	+	rack travel mm Rated speed rpm Tolerance 1/min	: 450 : ÷- 20	
GUIDE SLEEVE POSITION	<u>~</u>	Rated speed rpm CRT mm min.		
00100 000000 1 00111	1	Rated speed rpm		
control lever position degree : Rated speed rpm :	- 1 650	CRT mm max.		
Rack travel in mm : Tolerance mm :		TORQUE CONTROL		
	. 0.40			
FULL LOAD DELIVERY	AT FULL LOAD STOP	Rated speed rpm rack travel mm Tolerance mm	: 11.65	
FULL LOAD DELIVERY A Rated speed rpm : Aneroid pressure	+	rack travel mm Tolerance mm	: 11.65 : + 0.05	
FULL LOAD DELIVERY A Rated speed rpm : Aneroid pressure hPa : Del. quantity cm3/1000 strokes :	1400	rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm	: 11.65 : + 0.05 : 650 : 13.10 : + 0.10	
FULL LOAD DELIVERY A Rated speed rpm : Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 strokes :	1400	rack travel mm Tolerance mm Rated speed rpm rack travel mm Tolerance mm	: 11.65 : + 0.05 : 650 : 13.10 : + 0.10	
FULL LOAD DELIVERY / Rated speed rpm : Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance	1400 - 65.5 ← 1.5	rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm	: 11.65 : + 0.05 : 650 : 13.10 : + 0.10 : 810 : 12.70 : + 0.10	

#### Start interlock

#### STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 17.70 Tolerance mm : + 0.30 Del. quantity cm3/1000 strokes : 100.0 Tolerance

cm3/1000 strokes : + 7.5 Check tolerance

cm3/1000s. : + 10.0

#### LOW IDLE

Rated speed rpm : 275
Del. quantity
cm3/1000 strokes : 12.0
Tolerance
cm3/1000 strokes : + 1.5
Check tolerance
cm3/1000s. : + 3.5
Spreed
Tolerance
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000 strokes : 6.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/ ...

Edition Test oil

: 25.01.97 : ISO 4113

Combination No. : 0 400 865 017

Injection pump

Pump designation : PES5A8OD410/3RS2526

EP type number : 0 410 885 004

Governor

Governer design. : RSV325...1400A8C540L

Governer no. : 0 420 232 311

Cust. part No. :

Customer-spec. information

Customer : KHD Motor

: F5L912

Power KW

: 62.5

#### TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C

Tolerance \*C

: 40 : <del>--</del> 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly

: 0 681 343 009

Opening pressure

bar

173.5

Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar :  $\leftarrow$  1.0

Prestroke mm 1.95 : +- 0.05 Tolerance mm

Check

: + 0.10 tolerance mm

Rack travel in mm: 10.50

Tolerance mm : **←** 1.50

Firing order : 1-3-5-4-2

: 0-72-144-216-288 Phasing

÷ 0.50 Tolerance

(heck

tolerance \*NW : + 0.75

BASIC SETTING

Rated speed rpm : 1380

Rack travel in mm : 11.55

: **←** 0.05 Tolerance mm

Del. quantity

cm3/1000 strokes : 65.5

Tolerance

cm3/1000 strokes : +- 0.5

Check tolerance

cm3/1000s. : +- 2.0

Spreed

Tolerance

cm3/1000 strokes : 2.0

D26

		†
Check tolerance cm3/1090s.	; 3.5	CONTROL LEVER
		t control lever
		position degree : 116.0
Rated speed rpm	: 325	tolerance degree : + 4.0
Rack travel in mm :	: 7,60	+ RATED SPEED
Tolerance mm		rack travel mm : 10.50
Del. quantity		Rated speed rpm : 1425
cm3/1000 strokes	: 9.0	+ Tolerance 1/min : + 5
Tolerance		+
cm3/1000 strokes	: <del></del>	+ rack travel mm : 4.00
Check tolerance		+ Rated speed rpm : 1470
cm3/1000s.	: +- 4.5	+ Tolerance 1/min : + 15
Spreed	`	+
Tolerance		rack travel mm : 1.00
cm3/1000 strokes :	: 2.0	+ Tolerance mm : + 0.70
Check tolerance		Tolerance mm : + 0.70 Rated speed rpm : 1650
cm3/1000s.	: 3.0	+
		rack travel mm : 4.00
		Rated speed rpm : 1520
(B) SETTING OF INJE WITH GOVERNOR	ECTION PUMP	<u>†</u>
		LOW IDLE
GUIDE SLEEVE POSIT	ION	Ī
		control lever
control lever		+ position degree : 69.0
position degree :		+ tolerance degree : + 4.0
Rated speed rpm :	: 800	+
		+ Setting point w/out bumper spring
Rack travel in mm :		+
Tolerance mm :	: <del></del> 0.35	+ Rated speed rpm : 325
_		+ rack travel mm : 8.10
governor spring		Tolerance mm : + 0.10
pre-tension		t
click setting x	: 5,50	Testing:
		Rated speed rpm : 325
FULL LOAD DELIVERY	AT FULL LOAD STOP	+ rack travel mm : 7.60
		rack travel mm : 7.60 Tolerance mm : + 0.10
Rated speed rpm :	: 1380	+
neroid pressure		rack travel mm : 2.00
iPa	: -	Rated speed rpm : 655
el. quantity	-	+ Tolerance 1/min : + 30
m3/1000 strokes	: 65.5	1
Tolerance	-	
m3/1000 strokes	: <del></del> 0.5	TORQUE CONTROL
Check tolerance	- <del></del>	-
	: <del>+-</del> 2.0	Rated speed rpm : 1380
Spreed	. <del></del> -	rack travel mm : 11.55
olerance		+ Tolerance mm : +- 0.05
m3/1000 strokes :	2.0	1
Check tolerance		Rated speed rpm : 500
:m3/1000s.	3.5	rack travel mm : 12.75
	• •••	+ Tolerance mm : +- 0.05
		+ 1016120100 mm , += 11.113

900 Rated speed rpm : rack travel mm 12.25 : **←** 0.15 Tolerance mm

Start interlock

# LOW IDLE

325 Rated speed rpm :

Del. quantity cm3/1000 strokes : 9.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  3.0

Check tolerance

; :- 4.5 cm3/10000.

Spreed

Tolerance

2.0 cm3/1000 strokes :

Check tolerance

3.0 cm3/1000s.

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 25.01.97 Test oil : ISO 4113

Combination No. : 0 400 866 092

Injection pump

Pump designation : PES6A80D410/3RS2527

EP type number : 0 410 886 059

Governor

Governer design. : RSV325...1400A8C540L

Governer no. : 0 420 232 311

Cust. part No. :

Customer-spec. information

Customer : KHD

TEST BENCH REQUIREMENTS

Inlet line : 1.3

Test oil inlet

temp. °C

Tolerance °C

: +- 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly

: 0 681 343 009

Opening pressure

: 173.5

bar

Tolerance bar : - 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0

x length mm : 600

E01

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 1.95 Tolerance mm : + 0.05

Check

: **←** 0.10 tolerance mm

Rack travel in mm : 10.50

Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240 Final Phasing 0-60-120 Tolerance +0.50

Check

tolerance \*NW :  $\leftarrow$  0.75

BASIC SETTING

Rated speed rpm : 1380

Rack travel in mm : 11.50

Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 65.5

Tolerance

cm3/1000 strokes : +- 0.5

Check tolerance

cm3/1000s. : + 2.0

Spreed

Tolerance

cm3/1000 strokes : 2.5

Check tolerance cm3/1000s. : 4.0	<u> </u>
	+ CONTROL LEVER
	t control lever
Rated speed rpm : 325	position degree : 117.0 tolerance degree : + 4.0
Rack travel in mm : 8.50	+
Tolerance mm : +- 0.10 Cel. quantity	+ RATED SPEED + rack travel mm : 10.50
cm3/1000 strokes : 10.0	Rated speed rpm : 1425
Tolerance	Tolerance 1/min : + 5
cm3/1000 strokes : +- 1.5 Check tolerance	+ rack travel mm : 4.00
cm3/1000s. : + 3.5	+ Rated speed rpm : 1460
Spreed	Tolerance 1/min : + 15
Tolerance cm3/1000 strokes : 4.0	rack travel mm : 0.85
Check tolerance	→ Tolerance mm : ← 0.55
cm3/1000s. : 6.0	Rated speed rpm : 1680
	rack travel mm : 4.00
(B) SETTING OF INJECTION PUMP	Rated speed rpm : 1525
WITH GOVERNOR	<u></u>
	+
GUIDE SLEEVE POSITION	LOW IDLE
	+
control lever	control lever
position degree : - 3	position degree : 71.0
Rated speed rpm : 800	tolerance degree : +- 4.0
Rack travel in mm : 0.50	F Setting point w/out bumper spring
Tolerance mm : ← 0.20	725
governor spring	+ Rated speed rpm : 325 + rack travel mm : 8.00
pre-tension	+ Tolerance mm : + 0.10
click setting x : 4.80	Testing:
	T restrig:
FULL LOAD DELIVERY AT FULL LOAD STOP	+ Rated speed rpm : 325
Rated speed rpm : 1380	rack travel mm : 8.50 Tolerance mm : + 0.10
Aneroid pressure	+
hPa : - Del. quantity	rack travel mm : 2.00
cm3/1000 strokes : 65.5	+ Rated speed rpm : 670 + Tolerance 1/min : + 30
Tolerance	+
cm3/1000 strokes : + 0.5 Check tolerance	TORQUE CONTROL
cm3/1000s. : + 2.0	TORGOE CONTROL
Spreed	Rated speed rpm : 1380
Tolerance cm3/1000 strokes : 2.5	+ rack travel mm : 11.50 + Tolerance mm : + 0.05
Check tolerance	+ Total ance intil U.U.
cm3/1000s. : 4.0	+ Rated speed rpm : 900
	+ rack travel mm : 12.25 + Tolerance mm : + 0.15
	T roter differ than . F- U.13

Rated speed rpm : 400 rack travel mm : 12.75 Tolerance mm : ← 0.05

Start interlock

#### STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.25 Tolerance mm : + 0.75

Del. quantity

cm3/1000 strokes : 120.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  7.5

Check tolerance

cm3/1000s. : + 10.0

#### LOW IDLE

Rated speed rpm : 325 Del. quantity

cm3/1000 strokes : 10.0

Tolerance

cm3/1000 strokes : + 1.5

Check tolerance

cm3/1000s. : + 3.5

Spreed

Tolerance

cm3/1000 strokes : 4.0

Check tolerance

cm3/1000s. : 6.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 17.01.97 Test oil : ISO 4113

Combination No. : 0 400 866 143AA

Injection pump Pump designation : EP type number

Governor

Governer design. : Governer no.

Cust. part No. : 32719459

Customer—spec. information

Customer : CUMMINS

Motor

: 68T-145PS/260C

#### TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C 40 Tolerance °C

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

: 208.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0

E04

x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 2.15
Tolerance mm : +- 0.05 Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

Tolerance : +- 0.50

Check

tolerance  $^{\circ}NW$  : +- 0.75

Start of delivery blocking

\*NW after s.o.d. : 11.50

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 8.10 Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 76.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance	+	Check tolerance
cm3/1000s.	: +- 3.5	cm3/1000s. : + 3.5
Canada		Spreed
Spreed	†	Tolerance cm3/1000 strokes : 4.0
Tolerance	Ť	
cm3/1000 strokes		Check tolerance cm3/1000s. : 6.5
CILDY TOOL SCITCKES	; 4.0	cm3/1000s. : 6.5
Check tolerance	I	
cm3/1000s.	: 6.5	
		CONTROL LEVER
		outilities Ecocit
	· · · · · · · · · · · · · · · · · · ·	control lever
Rated speed rpm	: 350	position degree : 99.0
	+	tolerance degree : +- 4.0
Rack travel in mm		
Tolerance mm	: +- 0.10 +	RATED SPEED
Del. quantity	<b></b>	rack travel mm : 7.10
cm3/1000 strokes	: 13.0	Rated speed rpm : 1345
Tolerance	· · · · · · · · · · · · · · · · · · ·	Tolerance 1/min : +- 5
cm3/1000 strokes	: + 2.0	
Check tolerance cm3/1000s.	/ s	rack travel mm : 4.00 Rated speed rpm : 1415
Spreed	1	Tolerance 1/min : +- 15
Tolerance	I	rocerance mining . +- 15
cm3/1000 strokes	: 6.0	rack travel mm : 0.85
Check tolerance	1	Tolerance mm : + 0.55
cm3/1000s.	: 8.0	Rated speed rpm : 1570
	-	
	+	rack travel mm : 4.00
(B) SETTING OF IN	JECTION PUMP +	Rated speed rpm : 1420
WITH GOVERNOR	+	
	+	
	<u>†</u>	
GUIDE SLEEVE POSIT	TION	LOW IDLE
OOIDE OFFERE LOOIS	1	COW 1022
	1	
control lever	1	control lever
position degree		position degree : 80.0
Rated speed rpm		tolerance degree : + 4.0
	+	
Rack travel in mm		Setting point w/out bumper spring
Tolerance mm	: ← 0.20 †	770
	Ť	Rated speed rom : 350
governor spring	†	rack travel mm : 5.50
pre-tension click setting x	: 4.25	Tolerance mm : ← 0.10
ceren security x	· • • • I	Testing:
		resting.
FULL LOAD DELIVERY	Y AT FULL LOAD STOP	Rated speed rpm : 350
	1	rack travel mm : 6.00
Rated speed rpm	: 1300	Tolerance mm : + 0.10
Aneroid pressure	1	
hPa	: - +	rack travel mm : 2.00
Del. quantity	+	Rated speed rpm : 555
cm3/1000 strokes	: 76.0	Tolerance 1/min : +- 30
Tolerance	+	
cm3/1000 strokes	: + 1.0 +	
	+	TORQUE CONTROL
	•	

Rated speed rpm : 1300 rack travel mm : 8.10 Tolerance mm : **←** 0.05

Rated speed rpm : 500 8.55 rack travel mm : **←** 0.05 Tolerance mm

Start interlock

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa 500 Rated speed rpm Del. quantity

cm3/1000 strokes : 57.5

Tolerance

cm3/1000 strokes : + 1.5

Check tolerance

cm3/1000s. : +- 3.5

#### STARFING FUEL DELIVERY

Rated speed rpm 100 rack travel mm : 13.10 Tolerance mm : **←** 0.10 Del. quantity

cm3/1000 strokes : 105.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  5.0 Check tolerance

cm3/1000s. : <del>+-</del> 7.5

#### LOW IDLE

Rated speed rpm : 350 Del. quantity

cm3/1000 strokes : 13.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  2.0

Check tolerance

cm3/1000s.

Spreed

Tolerance

cm3/1000 strokes : 6.0

Check tolerance

cm3/1000s. 8.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 20.01.97 Test oil : ISO 4113

Combination No. : Ú 400 866 188AA

Injection pump Pump designation : EP type number

Governor

Governer design. : Governer no.

Cust. part No. : 3921160

Customer-spec. information

Customer : CDC Motor

: 6 CT/207Ps/1800

TEST BENCH REQUIREMENTS

Inlet line : 2.0

Test oil inlet

temp. °C 40 Tolerance °C

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

208.5 bar Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

E07

x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 28.0 Tolerance bar : + 1.0

Prestroke mm 2.85 : +- 0.05 Tolerance mm Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50 Tolerance mm

Firing order : 1-5- 3- 6- 2-

Phasing : 0-60-120-180-240

Tolerance : +- 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery mark

\*NW after s.o.d. : 10.00

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 830

Rack travel in mm : 13.45

Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 139.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance cm3/1000s. : + 3.5	Check tolerance cm3/1000s. : +- 3.5
Spreed	Spreed Tolerance
Talanana	cm3/1000 strokes : 4.0
Tolerance cm3/1009 strokes : 4.0	Check tolerance : 6.5
Check tolerance cm3/1000s. : 6.5	
UIIS/ 10000.	CONTROL LEVER
1	control lever
Rated speed rpm : 425	position degree : 102.0
†	tolerance degree : +- 4.0
Rack travel in mm: 5.20	
Tolerance mm : + 0.10	RATED SPEED
Del. quantity	reck travel mm : 12.40
cm3/1000 strokes : 11.5	Rated speed rpm : 930 Tolerance 1/min : +- 5
cm3/1000 strokes : + 2.0	Toterance Third : +- 5
Check tolerance	rack travel mm : 4.00
cm3/1000s. : + 4.5	Rated speed rpm : 970
Spreed	Tolarance 1/min : +- 15
Tolerance	•
cm3/1000 strokes : 6.0	rack travel mm : 0.85
Check tolerance	Tolerance mm : + 0.55
cm3/1000s. : 8.0	Rated speed rpm : 1100
†	rack travel mm : 4.00
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Rated speed rpm : 975
GUIDE SLEEVE POSITION	LOW IDLE
control lever	control lever
position degree : FREE	position degree : 76.0
Rated speed rpm : 800	tolerance degree : +- 4.0
t	
Rack travel in mm: 0.50 + 0.20 +	Setting point w/out bumper spring
Total alice min . V = 0.20	Rated speed rpm : 425
governor spring	rack travel mm : 4.70
pre-tension +	rack travel mm : 4.70 Tolerance mm : + 0.10
click setting x : 4.00	•
<u> </u>	Testing:
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 425
+	
Rated speed rpm : 830	rack travel mm : 5.20 Tolerance mm : + 0.10
Aneroid pressure	
hPa :	rack travel mm : 2.00
Del. quantity	Rated speed rpm : 460
cm3/1000 strokes : 139.0	Tolerance 1/min : +- 30
cm3/1000 strokes : +- 1.0	
+	TORQUE CONTROL

Rated speed rpm : 830 rack travel mm : 13.45 Tolerance mm : + 0.05

Start interlock

#### STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : **←** 1.00 Del. quantity

cm3/1000 strokes : 143.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  10.0

Check tolerance

cm3/1000s. : +- 13.0

#### LOW IDLE

Rated speed rpm : 425 Del. quantity cm3/1000 strokes : 11.5 Tolerance cm3/1000 strokes :  $\leftarrow$  2.0 Check tolerance cm3/1000s. : <del>+-</del> 4.5 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance : 8.0 cm3/1000s.

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 20,01,97 Test oil : ISO 4113

Combination No. : 0 400 866 197AA

Injection pump Pump designation : EP type number

Governor

Governer design. : Governer no.

Cust. part No. : 3921120

Customer-spec. information

Customer : CDC

: 6 CT/18UPs/22UO Moto:

#### TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet

temp. °C 40 Tolerance \*C

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 Tolerance bar : +- 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0

E10

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 28.0 Tolerance bar : + 1.0

Firing order : 1-5-3-6-2-

: 0-50-120-180-240 Phasing Phasing Tolerance

: + 0.50

Check

tolerance \*NW : +- 0.75

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.25 Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 104.5

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance

: +- 3.5 cm3/1000s.

Spreed

Tolerance

cm3/1000 strokes : 4.0

Check tolerance

6.5 cm3/1000s.

Rated speed rpm : 450

Rack travel in mm : 5.80 Tolerance mm : + 0.10

Del. quantity	_
cm3/1000 strokes Tolerance	: 18.0
cm3/1000 strokes	: +- 2.0
Check tolerance	
cm3/1000s. Spreed	: +- 4.5
Tolerance	
cm3/1000 strokes Check tolerance	: 6.0
cm3/1000s.	: 8.0
(B) SETTING OF IN	LIECTION DIMP
WITH GOVERNOR	MECLICIA LOUIL
GUIDE SLEEVE POSI	TION
control lever	
position degree	
Rated speed rpm	: 800
Rack travel in mm	
Tolerance mm	: <b>←</b> 0.20
governor spring	
pre-tension click setting x	: 4.75
cerek setting x	i 4.75
FULL LOAD DELIVER	Y AT FULL LOAD STOF
Rated speed rpm	: 1100
Aneroid pressure	: 1100
hPa	: 900
Del. quantity cm3/1000 strokes	: 104.5
Tolerance	
cm3/1000 strokes Check tolerance	: <b>←</b> 1.0
cm3/1000s.	: 3.5
Spreed	
Tolerance cm3/1000 strokes	: 4.0
Check tolerance	• • • • • • • • • • • • • • • • • • • •
cm3/1000s.	: 6.5
CONTROL LEVED	
CONTROL LEVER	
control lever	
position degree tolerance degree	: 53.0 : +- 4.0
to tel allice degli de	7.0
RATED SPEED	. 46.00
RATED SPEED rack travel mm	: 10.20

Rated speed rpm	: 1145
Tolerance 1/min	: ← 5
rack travel mm	: 4.00
Rated speed rpm	: 1235
Tolerance 1/min	: + 15
rack travel mm	: 0.85
Tolerance mm	: +- 0.55
Rated speed rpm	: 1390
nack thavel imm	: 4.00
Rated speed rpm	: 1240
LOW IDLE	
control lever position degree tolerance degree	: 33.0 : ← 4.0
Setting point w/c	out bumper spring
Rated speed rpm	: 450
rack thavel mm	: 5.30
Tolerance mm	: ← 0.10
Testing:	
Rated speed rpm	: 450
rack travel mm	: 5.80
Tolerance mm	: ← 0.10
nack travel mm	: 2.00
Rated speed rpm	: 570
Tolerarice 1/min	: ← 30
TORQUE CONTROL	·
Rated speed rpm	: 1100
rack travel mm	: 11.25
Tolerance mm	: ← 0.05
Rated speed rpm	: 750
rack travel mm	: 12.10
Tolerance mm	: + 0.10
Rated speed rpm	: 1100
rack travel mm	: 10.25
Tolerance mm	: +- 0.05

#### SETTING

500 Rated speed rpm Pressure hPa 900 rack travel mm 12.10 Tolerance mm : + - 0.10

Pressure hPa 500 Rated speed rpm rack travel mm 10.45 : + 0.10 Tolerance mm

#### MEASUREMENT

500 Rated speed rpm :

Pressure hPa 425 : rack travel mm 11.70 Tolerance mm : + 0.20

305 Pressure hPa rack travel mm 11.15 Tolerance mm : ← 0.05

Start interlock

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

900 hPa Rated speed rpm 750

Del. quantity cm3/1000 strokes : 114.5

Tolerance

cm3/1000 strokes : +-2.0

Check tolerance

cm3/1000s. 4.0

Aneroid pressure

Rated speed rpm 500 Del. quantity

cm3/1000 strokes :

Tolerance cm3/1000 strokes : +-1.0

81.0

Check tolerance

cm3/1000s. 3.0

#### STARTING FUEL DELIVERY

Rated speed rpm 100 20.50 rack travel mm Tolerance mm : +- 1.00

Del. quantity

cm3/1000 strokes : 145.0 Tolerance

cm3/1000 strokes : +- 10.0

Check tolerance

: +- 13.0 cm3/1000s.

#### LOW IDLE

Rated speed rpm 450

Del. quantity cm3/1000 strokes : 18.0

Tolerance

cm3/1000 strokes : +-2.0

Check tolerance

4.5 cm3/1000s.

Spreed

Tolerance

cm3/1000 strokes : 6.0

Check tolerance

cm3/1000s. 8.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 21.01.97 : ISO 4113

Combination No. : 0 400 866 197AB

Injection pump Pump designation : EP type number

Governor

Governer design. : Governer no.

Cust. part No. : 3915996

Customer-spec. information

Cust@er : CDC

Motor

: 6 CT/202Ps/2200

#### TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet

temp. °C Tolerance °C

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly : 1 688 901 017

Opening pressure

208.5 bar Tolerance bar : ← 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

#### BEGINNING OF DELIVERY

Test pressure bar : 28.0 Tolerance bar : + 1.0

Firing order : 1-5-3-6-2-

Check

tolerance \*NW : ← 0.75

Start of delivery mark

\*NW after s.o.d. : 11.00

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.15 Tolerance mm : ← 0.05

Del. quantity cm3/1000 strokes : 119.5

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance

cm3/1000s. : **←** 3.5

Spreed

Tolerance

cm3/1000 strokes :

4.0

Check tolerance

cm3/1000s.6.5

Rated speed rpm	: 450
Rack travel in mm	5.50
Tolerance mm	: + 0.10
Del. quantity cm3/1000 strokes	. 19.0
Tolerance	: 18.0
cm3/1000 strokes	: <del>+</del> 2.0
Check tolerance	
cm3/1000s. Spreed	: <b>←</b> 4.5
Tolerance	
cm3/1000 strokes	: 6.0
Check tolerance cm3/1000S.	: 8.0
· · · · · · · · · · · · · · · · · · ·	. 0.0
(B) SETTING OF IN WITH GOVERNOR	UECTION PUMP
GUIDE SLEEVE POSI	TION
control lever	rore
position degree Rated speed rpm	: FREE : 800
Wassa speed (p	
Rack travel in mm Tolerance mm	0.50 + 0.20
Oterance min	. + 0.20
governor spring	
pre-tension click setting x	: 2.00
cerek secenig x	ι ε.υυ
FULL LOAD DELIVER	Y AT FULL LOAD STOP
Rated speed rpm Aneroid pressure	: 1100
hPa	: 900
Del. quantity	. 440 5
cm3/1000 strokes Tolerance	: 119.5
cm3/1000 strokes	: <del>+</del> 1.0
Check tolerance	7 5
cm3/1000s. Spreed	: <del>+</del> 3.5
Tolerance	
cm3/1000 strokes	: 4.0
Check tolerance cm3/1000s.	: 6.5
····· / 10003 /	. 0.5

control lever position degree tolerance degree	
RATED SPEED rack travel mm Rated speed rpm Tolerance 1/min	: 11.10 : 1145 : +- 5
rack travel mm Rated speed rpm Tolerance 1/min	: 4.00 : 1200 : + 15
rack travel mm Tolerance mm Rated speed rpm	: 0.85 : ← 0.55 : 1355
rack travel mm Rated speed rpm	: 4.00 : 1205
LOW IDLE	
control lever position degree tolerance degree	: 26.0 : + 4.0
Setting point w/o	ut bumper spring
Rated speed rpm rack travel mm Tolerance mm	: 450 : 5.00 : +- 0.10

# Testing: Rated speed rpm : 450 rack travel mm : 5.50 Tolerance mm : +- 0.10 rack travel mm : 2.00 Rated speed rpm : 510 Tolerance 1/min : +- 30

TORQUE CONTROL	
Rated speed rpm	: 1100
rack travel mm	: 12.15
Tolerance mm	: + 0.05
Rated speed rpm	: 750
rack travel mm	: 13.30
Tolerance mm	: ← 0.10

# ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm	:	500
Pressure hPa	:	90 <b>0</b>
rack travel mm	:	13.30
Tolerance mm	•	← 0.10

Pressure hPa	:		_
Rated speed rpm	:		500
rack travel mm	:		10.45
Tolerance mm	:	+-	0.10

#### **MEASUREMENT**

Rated	speed	rpm	:	500
-------	-------	-----	---	-----

Pressure hPa	:	560
rack travel mm	:	12.80
Tolerance mm	: +	- 0.20

Pressure hPa	:	385
rack travel mm	:	11.45
Tolerance mm	: +	- 0.05

#### Start interlock

# FUEL DELIVERY CHARACTERISTICS

Aneroid pressure		
hPa	:	900
Rated speed rpm	:	750
Del. quantity		
cm3/1000 strokes	:	135.0

Tolerance cm3/1000 strokes : + 2.0

Check tolerance cm3/1000s. : +- 4.0

Aneroid pressure

hPa : Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 79.0
Tolerance

cm3/1000 strokes : + 1.0

Check tolerance cm3/1000s. : +- 3.0

STARTING FUEL DELIVERY

Rated speed rpm	:		100
rack travel mm	:		20.50
Tolerance mm	•	+-	1.00
Del. quantity			
cm3/1000 strokes	:		145.0
Tolerance			
cm3/1000 strokes	:	+	10.0
Check tolerance			
cm3/1000s.	:	+-	13.0

# LOW IDLE

Rated speed rpm	:		450
Del. quantity			
cm3/1000 strokes	:		18.0
Tolerance			
cm3/1000 strokes	:	+-	2.0
Check tolerance			
cm3/1000s.	:	+-	4.5
Spreed			
Tolerance			
cm3/1000 strokes	:		6.0
Check tolerance	,		
cm3/1000s.	:		8.0
	•		

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 21.01.97

: ISO 4113

Combination No. : 0 400 866 204AA

Injection pump Pump designation : EP type number

Governor

Governer design. : Governer no.

Cust. part No. : 3921107

Customer-spec. information

Customer : CDC

Motor

: 6 CT/177Ps/2500

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C Tolerance °C

40

Overflow valve

: 1 417 413 647

Inlet press. bar :

1.5

Tolerance bar : + 0.1

Test nozzle holde

assembly

: 1 688 901 017

Opening pressure

bar

: 208.5

Tolerance bar

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

: 2.85 Prestroke mm

: +- 0.05 Tolerance mm

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

Tolerance : **←** 0.50

Check

tolerance \*NW : - 0.75

Start of delivery mark

\*iW after s.o.d. : 11.00

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm: 10.85

Tolerance mm  $: \leftarrow 0.05$ 

Del. quantity

cm3/1000 strokes : 100.5

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

-	† Check tolerance
<pre>Check tolerance</pre>	+ cm3/1000s. : +- 3.0
cm $3/1000$ s. : $\leftarrow$ 3.0	+ Spreed
Spreed	Tolerance : 4.0
opi ceu	Check tolerance
Tolerance	cm3/1000s. : 6.5
cm3/1000 strokes : 4.0	. 0.5
•	1
Check tolerance	
cm3/1000s. : 6.5	CONTROL LEVER
	+
•	control lever
Setar annual con / OC	position degree : 105.0
Rated speed rpm : 400 -	colerance degree : + 4.0
Rack travel in mm: 5.30	RATED SPEED
Tolerance mm : + 0.10	rack travel mm : 9.80
Del. quantity	Rated speed rpm : 1330
cm3/1000 strokes : 14.5	Tolerance 1/min : +- 5
Tolerance	1 occi dice in min
cm3/1000 strokes : +- 2.0 -	rack travel mm : 4.00
Check tolerance	Rated speed rpm : 1405
cm3/1000s. : + 4.5	Tolerance 1/min : +- 15
Spreed -	+
Tolerance -	rack travel mm : 0.85
cm3/1000 strokes : 6.0	Tolerance mm : +- 0.55
Check tolerance	Rated speed rpm : 1565
cm3/1000s. : 8.0	
•	rack travel mm : 4.00
(B) SETTING OF INJECTION PUMP	Rated speed rpm : 1415
WITH GOVERNOR	I
WITH SOVERHOR	
-	
	LOW TOLE
GUIDE SLEEVE POSITION -	+
•	†
and all laves	control lever
control lever	position degree : 80.0
position degree : FREE - Rated speed rpm : 800 -	tolerance degree : +- 4.0
hated speed rps . ooo	Setting point w/out bumper spring
Rack travel in mm: 0.50	Parting point wroat bamper spring
Tolerance mm : + 0.20	Rated speed rpm : 400
-	rack travel mm : 4.80
governor spring	rack travel mm : 4.80 Tolerance mm : + 0.10
pre-tension -	+
click setting x : 5.50 -	Testing:
•	<del> </del>
	Rated speed rpm : 400
FULL LOAD DELIVERY AT FULL LOAD STOP	rack travel mm : 5.30
Dated around non a 4250	Tolerance mm : +- 0.10
Rated speed rpm : 1250	nack that all the same and a same
Aneroid pressure hPa : -	rack travel mm : 2.00 Rated speed rpm : 525_
Del. quantity	Tolerance 1/min : +- 30
cm3/1000 strokes : 100.5	Total ance 1/111111 : ** 30
Tolerance	
cm3/1000 strokes : +- 1.0	TORQUE CONTROL
THE TOTAL OF THE TENT	

Rated speed rpm : 1250 rack travel mm : 10.85 Tolerance mm : : : : 3.05

Start interlock

# STARTING FUEL DELIVERY

Rateo speed rpm: : 100
rack travel mm : 20.00
Tolerance mm : + 1.00
Del. quantity
cm3/1000 strokes : 155.0
Tolerance
cm3/1000 strokes : + 10.0
Check tolerance
cm3/1000s. : + 15.0

#### LOW IDLE

Rated speed rpm : 400
Del. quantity
cm3/1000 strokes : 14.5
Tolerance
cm3/1000 strokes : + 2.0
Check tolerance
cm3/1000s. : + 4.5
Spreed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000 strokes : 8.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 21.01.97 : 21.01.97 : ISO 4113

Combination No. : 0 400 866 204AB

Injection pump Pump designation : EP type number

Governor

Governer design : Governer rio.

Cust. part No. : 3921116

Customer-spec. information

Customer

: CDC

: 6 CT/123Ps/2100 Motor

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C Tolerance °C

Overflow valve : 1 477 413 047

Inlet press. bar : 1.5 Tolerance bar : +- 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm 2.85 : +- 0.05 Tolerance mm

Check

tolerance mm : **←** 0.10

Rack travel in mm : 10.50 : +- 1.50 Tolerance mm

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

Tolerance : +- 0.50

Check

tolerance \*ivW : + 0.75

Start of delivery blocking

\*NW after s.o.d. : 11.00

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm: 10.75 : +- 0.05 Tolerance mm

Del. quantity

cm3/1000 strokes : 100.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance cm3/1000s.	: + 3.0	+ Check tolerance + cm3/1000s. : +- 3.0 + Spreed
Spreed		Tolerance cm3/1000 strokes : 4.0
- 1		+ Check tolerance
Tolerance cm3/1000 strokes	: 4.0	+ cm3/1000s. : 6.5
Check tolerance		0017001 4 51/50
M2) (UOU).	: 6.5 	CONTROL LEVER
		+ control lever
lated aread are	: 300	+ position degree : 54.0
Rated speed rpm	: 500	tolerance degree : +- 4.0
Rack travel in mm	5.70	T RATED SPEED
	+- 0.10	rack travel mm : 9.70
el. quantity		+ Rated speed rpm : 1100
m3/1000 strokes	: 13.0	Tolerence 1/min : +- 5
olerance		†
	: <del>-</del> 2.0	+ rack travel mm : 4.00
Check tolerance	- + / E	+ Rated speed rpm : 1195
cm3/1000s. Spreed	: +- 4.5	Tolerance 1/min : +- 15
olerance		Track travel mm : 0.85
	: 6.0	+ Tolerance mm : + 0.55
heck tolerance		Rated speed rpm : 1350
HOCK COLE BILLE		
	8.0	Traced opeca i piii . 1000
cm3/1000s.  (B) SETTING OF INJUDITH GOVERNOR		rack travel mm : 4.00 Rated speed rpm : 1200
cm3/1000s.  (B) SETTING OF INJUDITH GOVERNOR	ECTION PUMP	rack travel mm : 4.00
cm3/1000s.  (B) SETTING OF INJI	ECTION PUMP	rack travel mm : 4.00 Rated speed rpm : 1200
Cm3/1000s.  (B) SETTING OF INJUSTITH GOVERNOR  SUIDE SLEEVE POSIT:	ECTION PUMP	rack travel mm : 4.00 Rated speed rpm : 1200  LOW IDLE  control lever
cm3/1000s.  (B) SETTING OF INJUSTITH GOVERNOR  SUIDE SLEEVE POSIT:	ECTION PUMP	rack travel mm : 4.00 Rated speed rpm : 1200  LOW IDLE  control lever position degree : 35.0
cm3/1000s.  (B) SETTING OF INJUSTITH GOVERNOR  GUIDE SLEEVE POSIT:  control lever	ECTION PUMP  ION  FREE	rack travel mm : 4.00 Rated speed rpm : 1200  LOW IDLE  control lever
cm3/1000s.  (B) SETTING OF INJUSTING OF INJUSTING OF INJUSTICAL CONTROL  ECTION PUMP	rack travel mm : 4.00 Rated speed rpm : 1200  LOW IDLE  control lever position degree : 35.0 tolerance degree : + 4.0	
SM3/1000s.  SB) SETTING OF INJUSTICATION	CON  FREE  800	rack travel mm : 4.00 Rated speed rpm : 1200  LOW IDLE  control lever position degree : 35.0
cm3/1000s.  (B) SETTING OF INJUSTICATION	ECTION PUMP  ION  FREE  800  0.50	rack travel mm : 4.00 Rated speed rpm : 1200  LOW IDLE  control lever position degree : 35.0 tolerance degree : +- 4.0  Setting point w/out bumper spring
cm3/1000s.  (B) SETTING OF INJENITH GOVERNOR  SUIDE SLEEVE POSIT:  control lever cosition degree Rated speed rpm	CON  FREE  800	rack travel mm : 4.00 Rated speed rpm : 1200  LOW IDLE  control lever position degree : 35.0 tolerance degree : +- 4.0  Setting point w/out bumper spring Rated speed rpm : 500
cm3/1000s.  (B) SETTING OF INJUSTING OF INJUSTICATION OF	ECTION PUMP  ION  FREE  800  0.50	rack travel mm : 4.00 Rated speed rpm : 1200  LOW IDLE  control lever position degree : 35.0 tolerance degree : +- 4.0  Setting point w/out bumper spring
cm3/1000s.  (B) SETTING OF INJUSTING OF INJUSTICATION OF	FREE 800	rack travel mm : 4.00 Rated speed rpm : 1200  LOW IDLE  control lever position degree : 35.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 500 rack travel mm : 5.20
m3/1000s.  B) SETTING OF INJUSTED THE GOVERNOR  UIDE SLEEVE POSIT:  ontrol lever osition degree ated speed rpm  ack travel in mm olerance mm  overnor spring re-tension	FREE 800	rack travel mm : 4.00 Rated speed rpm : 1200  LOW IDLE  control lever position degree : 35.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 500 rack travel mm : 5.20
m3/1000s.  B) SETTING OF INJUITH GOVERNOR  UIDE SLEEVE POSIT: ontrol lever osition degree ated speed rpm ack travel in mm olerance mm overnor spring re-tension lick setting x	ECTION PUMP  CON  FREE  800  0.50  0.20	rack travel mm : 4.00 Rated speed rpm : 1200  LOW IDLE  control lever position degree : 35.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 500 rack travel mm : 5.20 Tolerance mm : + 0.10  Testing:  Rated speed rpm : 500
im3/1000s.  iB) SETTING OF INJUITH GOVERNOR  GUIDE SLEEVE POSIT:  control lever cosition degree cated speed rpm  clack travel in mm colerance mm  covernor spring cretension click setting x	ECTION PUMP  CON  FREE  800  0.50  0.20	rack travel mm : 4.00 Rated speed rpm : 1200  LOW IDLE  control lever position degree : 35.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 500 rack travel mm : 5.20 Tolerance mm : + 0.10  Testing:  Rated speed rpm : 500 rack travel mm : 5.70
Cm3/1000s.  (B) SETTING OF INJUSTICATION OF SUITH GOVERNOR  SUIDE SLEEVE POSIT:  Control lever control lever control degree Rated speed rpm  Rack travel in mm  Tolerance mm  Sovernor spring cretension Click setting x	ECTION PUMP  TON  FREE  800  0.50  + 0.20  5.50  AT FULL LOAD STOP	rack travel mm : 4.00 Rated speed rpm : 1200  LOW IDLE  control lever position degree : 35.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 500 rack travel mm : 5.20 Tolerance mm : + 0.10  Testing:  Rated speed rpm : 500
cm3/1000s.  (B) SETTING OF INJECTION OF INJECTION OF SUIDE SLEEVE POSITECTION OF SUIDE SLEEVE POSITECTION OF SUIDE SLEEVE POSITECTION OF SUIDE SLEEVE POSITECTION OF SUIDE SUID SUIDE SUID SUIDE SUIDE SUIDE SUIDE SUIDE SUIDE SUIDE SUIDE SUIDE SUIDE SUIDE SUIDE SUIDE SUID	ECTION PUMP  TON  FREE  800  0.50  + 0.20  5.50  AT FULL LOAD STOP	rack travel mm : 4.00 Rated speed rpm : 1200  LOW IDLE  control lever position degree : 35.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 500 rack travel mm : 5.20 Tolerance mm : + 0.10  Testing:  Rated speed rpm : 500 rack travel mm : 5.70 Tolerance mm : 5.70 Tolerance mm : + 0.10
cm3/1000s.  (B) SETTING OF INJENITH GOVERNOR  SUIDE SLEEVE POSIT:  control lever cosition degree Rated speed rpm Rack travel in mm rolerance mm sovernor spring ore—tension click setting x  FULL LOAD DELIVERY Rated speed rpm Aneroid pressure	ECTION PUMP  TON  FREE  800  0.50  + 0.20  5.50  AT FULL LOAD STOP	rack travel mm : 4.00 Rated speed rpm : 1200  LOW IDLE  control lever position degree : 35.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 500 rack travel mm : 5.20 Tolerance mm : +- 0.10  Testing:  Rated speed rpm : 500 rack travel mm : 5.70 Tolerance mm : 5.70 Tolerance mm : +- 0.10  rack travel mm : 2.00
cm3/1000s.  (B) SETTING OF INJENITH GOVERNOR  SUIDE SLEEVE POSIT:  control lever cosition degree Rated speed rpm Rack travel in mm rolerance mm sovernor spring ore—tension click setting x  FULL LOAD DELIVERY Rated speed rpm Aneroid pressure iPa	ECTION PUMP  TON  FREE  800  0.50  + 0.20  5.50  AT FULL LOAD STOP	rack travel mm : 4.00 Rated speed rpm : 1200  LOW IDLE  control lever position degree : 35.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 500 rack travel mm : 5.20 Tolerance mm : + 0.10  Testing:  Rated speed rpm : 500 rack travel mm : 5.70 Tolerance mm : 5.70 Tolerance mm : + 0.10
cm3/1000s.  (B) SETTING OF INJECTION OF INJE	ECTION PUMP  TON  FREE  800  0.50   5.50  AT FULL LOAD STOP  1050	rack travel mm : 4.00 Rated speed rpm : 1200  LOW IDLE  control lever position degree : 35.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 500 rack travel mm : 5.20 Tolerance mm : +- 0.10  Testing:  Rated speed rpm : 500 rack travel mm : 5.70 Tolerance mm : +- 0.10  rack travel mm : 5.70 Tolerance mm : +- 0.10  rack travel mm : 2.00 Rated speed rpm : 615
Cm3/1000s.  (B) SETTING OF INJECT OF SUITS SUIDE SLEEVE POSITE CONTROL LEVER POSITE CONTROL RECK travel in mm Folerance mm Procedure Reck travel in mm Folerance mm Fol	ECTION PUMP  ION  FREE 800 0.50 +- 0.20  5.50  AT FULL LOAD STOP 1050 100.0	rack travel mm : 4.00 Rated speed rpm : 1200  LOW IDLE  control lever position degree : 35.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 500 rack travel mm : 5.20 Tolerance mm : +- 0.10  Testing:  Rated speed rpm : 500 rack travel mm : 5.70 Tolerance mm : +- 0.10  rack travel mm : 5.70 Tolerance mm : +- 0.10  rack travel mm : 2.00 Rated speed rpm : 615

Rated speed rpm : 1050 rack travel mm : 10.75 Totarance nm  $: \leftarrow 0.05$ 

Rated speed rpm : 750

rack travel mm : 12.20

Start interlock

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa Rated speed rpm : 750 Del. quantity

cm3/1000 strekes : 122.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  2.0

Check tolerance

cm3/1000s. : +- 4.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.00 : **←** 1.00 Tolerance mm

Del. quantity

cm3/1000 strokes : 145.0

Tolerance

cm3/1000 strokes : - 10.0

Check tolerance

cm3/1000S. : +- 15.0

#### LOW IDLE

500 Rated speed rpm :

Del. quantity cm3/1000 strokes : 18.0

Tolerance

 $cm3/1000 strokes : \leftarrow 2.0$ 

Check tolerance cm3/1000s. : +- 4.5

.Spreed

Tolerance

cm3/1000 strokes : 6.0

Check tolerance

cm3/1000s. 8.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 21.01.97 Edition Test oil : ISO 4113

Combination No. : 0 400 866 208AA

Injection pump Pump designation : EP type number

Governor

Governer design. : Governer no.

Cust. part No. : 3921143

Customer—spec. information : CDC Customer

: 6 CT/173Ps/2200 Motor

#### TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet

temp. °C 40 Tolerance \*C : +- 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

bar 208.5 Tolerance bar : +- 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

#### BEGINNING OF DELIVERY

Test pressure bar : 28.0 Tolerance bar : + 1.0

Firing order : 1-5-3-6-2-

: 4

Phasina Tolerance : 0-60-120-180-240

: **←** 0.50

Check

tolerance \*Nw : +- 0.75

Start of delivery mark

\*NW after s.o.d. : 10.00

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm: 10.60

Tolerance mm : **←** 0.05

Del. quantity

cm3/1000 strokes : 124.5

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : **←** 3.5

Spreed

Tolerance

cm3/1000 strokes : 4.0

Check tolerance

: 6.5 cm3/1000s.

: 400
5.60
: <b>←</b> 0.10
: 18.C
: +- 2.0
: +- 4.5
: 6.0
. 0.0
: 8.0
JECTION PUMP
TION
: FREE
: 800
: 0.50
: + 0.20
: 3.00
Y AT FULL LOAD STOP
: 1100
. 1100
: -
: 124.5
164.3
: <del>+</del> 1.0
: +- 3.5
7 7
3.3
3.3
: 4.0

control lever position degree tolerance degree	: 99.0 : + 4.0
RATED SPEED rack travel mm Rated speed rpm Tolerance 1/min	: 9.65 : 1145 : + 5
rack travel mm Rated speed rpm Tolerance 1/min	: 4.00 : 1200 : + 15
rack travel mm Tolerance mm Rated speed rpm	: 0.85 : +- 0.55 : 1355
rack travel mm Rated speed rpm	: 4.00 : 1205
LOW IDLE	
control lever	

TOM TOPE
control lever position degree : 78.0 tolerance degree : + 4.0
Setting point w/out bumper spring
Rated speed rpm : 400 rack travel mm : 5.10 Tolerance mm : + 0.10
Testing:
2.4.1

reserrig.	
Rated speed rpm	: 400
rack travel mm	: 5.60
Tolerance mm	: + 0.10
rack travel mm	: 2.00
Rated speed rpm	: 490
Tolerance 1/min	: ← 30

TORQUE	CONTROL	

Rated speed rpm : 1100 rack travel mm : 10.60 Tolerance mm : + 0.05

Start interlock

#### STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.00 : +- 1.00 Tolerance mm

Del. quantity

cm3/1000 strokes : 147.5

Tolerance

cm3/1000 strokes : + 10.0

Check tolerance cm3/1000s. : + 13.0

# LOW IDLE

Rated speed rpm : 400 Del. quantity cm3/1000 strokes : 18.0 Tolerance cm3/1000 strokes : +- 2.0 Check tolerance cm3/1000s.: +- 4.5 Spreed Tolerance 6.0 cm3/1000 strokes : Check tolerance cm3/1000s.8.0

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition Test oil

: 21.01.97 : ISO 4113

Combination No. : 0 400 866 208AB

Injection pump Pump designation : EP type number

Governor

Governer design. : Governer no.

Cust. part No. : 3921099

Customer-spec. information : CDC

Customer

Motor

: 6 CT/210Ps/2200

TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet

temp. °C Tolerance °C

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

208.5 bar Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 28.0 Tolerance bar : + 1.0

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240 Tolerance : + 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery mark

\*NW after s.o.d. : 10.00

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.35

: +- 0.05 Tolerance mm

Del. quantity

cm3/1000 strokes : 123.5

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

: +- 3.5 cm3/1000s.

Spreed

Tolerance

cm3/1000 strokes : 4.0

Check tolerance

cm3/1000s. 6.5

E25

Rated speed rpm : 400  Rack travel in mm : 5.70 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 18.0 Tolerance cm3/1000s strokes : + 2.0 Check tolerance cm3/1000s. : + 4.5 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 8.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE POSITION  control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20 governor spring pre-tension click setting x : 4.75  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1100 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 123.5 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 3.5 Spreed Tolerance cm3/1000s. : 6.5		
Tolerance mm : + 0.10  Del. quantity cm3/1000 strokes : 18.0  Tolerance cm3/1000 strokes : + 2.0  Check tolerance cm3/1000s. : + 4.5  Spreed  Tolerance cm3/1000s strokes : 6.0  Check tolerance cm3/1000s. : 8.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE POSITION   control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 4.75  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1100 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 123.5  Tolerance cm3/1000 strokes : + 1.0  Check tolerance cm3/1000 strokes : 4.0  Check tolerance cm3/1000 strokes : 4.0  Check tolerance cm3/1000 strokes : 4.0  Check tolerance	Rated speed rpm	: 400
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cm3/1000 strokes : 4.0 Check tolerance		
Check tolerance		
		: 4.0
Cm5/ 1000s. ; 0.5		. 45
	Cm3/TUUUS.	. 0.5

control lever position degree tolerance degree	: 54.0 : + 4.0
RATED SPEED rack travel mm Rated speed rpm Tolerance 1/min	: 11.30 : 1150 : + 5
rack travel mm	: 4.00
Rated spaed rpm	: 1255
Tolerance 1/min	: + 15
rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1410
rack travel mm	: 4.00
Rated speed rpm	: 1260
I OH TOLE	

	0W		
1.	V=	IDL	_

control lever		
position degree	:	32.0
tolerance degree	: +-	4.0
_		

Setting point w/out bumper spring

Rated speed rpm	:	400	
rack travel mm	:	5.20	)
Tolerance mm	: -	─ 0.10	)

# Testing:

Rated speed rpm	: 400
rack travel mm	: 5.70
Tolerance mm	: ← 0.10
rack travel mm	: 2.00
Rated speed rpm	: 525
Tolerance 1/min	: ← 30

# TORQUE CONTROL

Rated speed rpm	:	1100
rack travel mm	:	12.35
Tolerance mm	: -	

Start interlock

#### STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.00 Tolerance mm : +- 1.00 Del. quantity

cm3/1000 strokes : 145.0

Tolerance

cm3/1000 strokes : + 10.0

Check tolerance cm3/1000s.

: +- 13.0

#### LOW IDLE

Rated speed rpm : 400 Del. quantity cm3/1000 strokes : 18.0 Tolerance cm3/1000 strokes :  $\leftarrow$  2.0 Check tolerance cm3/1000s. : +- 4.5 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. 8.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 24.01.97 : ISO 4113

Combination No. : 0 400 866 208AC

Injection pump Pump designation : EP type number

Governor

Governer design. : Governer no.

Cust. part No. : 3921089

Customer-spec. information : CDC

Customer

: 6 C /155Ps/2500 Motor

TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet

40 temo. °C Tolerance °C

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

208.5 bar Tolerance bar : +- 1.5

: 1 680 750 014 Test lines

Outside diameter : 6.0

x inside diameter: 2.0

x length min : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 28.0 Tolerance bar : + 1.0

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

Tolerance : **←** 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery mark

\*NW after s.o.d. : 11.00

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm: 9.65

: +- 0.05 Tolerance mm

Del. quantity cm3/1000 strokes :

80.5

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance

cm3/1000s. : +-3.5

Spreed

Tolerance

cm3/1000 strokes :

Check tolerance

cm3/1000s. : 6.5

4.0

Rated speed rpm	: 400
Rack travel in mm	5.70
Tolerance mm	· +- 0.10
Del. quantity	
cm3/1000 strokes Tolerance	: 16.5
cm3/1000 strokes	: <b>←</b> 2.0
Check tolerance	
cm3/1000S.	: +- 4.5
Spreed	
Tolerance	
cm3/1000 strokes Check tolerance	: 6.0
cm3/1909s.	. 8.0
0.107.150.00.	. 0.0
(0) 00000000 00 00	IPATTAN DIMA
(B) SETTING OF IN- WITH GOVERNOR	JECTION PUMP
MIIII GOACINION	
GUIDE SLEEVE POSI	TION
GOIDE SPEENE LOSI	11014
control leven	
position degree	
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	· + 0.20
governor spring	
pre-tension	
click setting x	: 2.00
FULL LOAD DELIVER	Y AT FULL LOAD STOP
- <del>-</del> · ·	I AT TOLL LOAD OTO
Rated speed rpm	: 1050
Rated speed rpm Aneroid pressure	: 1050
Rated speed rpm Aneroid pressure hPe	
Rated speed rpm Aneroid pressure	: 1050
Rated speed rpm Aneroid pressure hPe Del. quantity cm3/1000 strokes Tolerance	: 1050 : - : 80.5
Rated speed rpm Aneroid pressure hPe Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 1050 : -
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Rated speed rpm Aneroid pressure hPe Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000S. Spreed Tolerance cm3/1000 strokes	: 1050 : - : 80.5 : ← 1.0 : ← 3.5
Rated speed rpm Aneroid pressure hPe Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance	: 1050 : - : 80.5 : ← 1.0 : ← 3.5 : 4.0

control lever position degree tolerance degree	: 95.0 : + 4.0
RATED SPEED rack travel mm Rated speed rpm Tolerance 1/min	: 8.60 : 1100 : + 5
rack travel mm Rated speed rpm Tolerance 1/min	: 4.00 : 1135 : ← 15
rack travel mm Tolerance mm Rated speed rpm	: 0.85 : ← 0.55 : 1290
rack travel mm Rated speed rpm	: 4.00 : 1140

control lever position degree tolerance degree	: 77.0 : + 4.0
Setting point w/o	ut bumper spring

Rated speed rpm	:	4.0C
rack travel mm	:	5.20
Tolerance mm	: +	- 0.10

# Testing:

Rated speed rpm	:		400
rack travel mm	:		5.70
Tolerance mm	:	+-	0.10
rack travel mm	:		2.00
Rated speed rpm	:		470
Tolerance 1/min	:	+-	30

# TORQUE CONTROL

Rated speed rpm	: 1050
rack travel mm	: 9.65
Tolerance mm	: + 0.05
Rated speed rpm	: 750
rack travel mm	: 10.50
Tolerance mm	: + 0.10

Start interlock

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa 750 Rated speed rpm

Del. quantity cm3/1000 strokes : 88.5

Tolerance

cm3/1000 strokes : +-2.0

Cneck tolerance

cm3/1000s.4.0

#### STARTING FUEL DELIVERY

Rated speed rpm 100 20.00 rack travel mm Tolerance mm : **←** 1.00

Del. quantity

cm3/1000 strokes : 155.0

Tolerance

cm3/1000 strokes : + 10.0

Check tolerance

cm3/1000s.: **←** 13.0

#### LOW IDLE

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 16.5

Tolerance

cm3/1000 strokes : +-2.0

Check tolerance

cm3/1000s. 4.5

Spreed

Tolerance

cm3/1000 strokes : 6.0

Check tolerance

cm3/1000s. 8.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 24.01.97 Test oil : 150 4113

Combination No. : 0 400 366 208AD

Injection pump Pump designation : EP type number

Governor

Governer design. : Governer no.

Cust. part No. : 3921144

Customer-spec. information

Customer : CDC

Motor

: 6 CT/215Ps/2500

#### TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet

temp. °C 40 Tolerance °C

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde

: 1 688 901 017 assembly

Opening pressure

: 208.5 bar Tolerance bar : +- 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0

F03

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 28.0 Tolerance bar : + 1.0

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240 Tolerance : + 0.50

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Start of delivery mark

\*NW after s.o.d. : 11.00

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 12.00 Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 122.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance

cm3/1000s. : <del>+-</del> 3.5

Spreed

Tolerance

cm3/1000 strokes : 4.0

Check tolerance

cm3/1000s.

6.5

Rated speed rpm	: 400
Rack travel in mm	: 5.50
Tolerance mm	: +- 0.10
Del. quantity	
cm3/1000 strokes	: 19.0
Tolerance	
cm3/1000 strokes	: +- 2.0
Check tolerance cm3/1000s.	: +- 4.5
Spreed	4.5
Tolerance	
cm3/1000 strokes	: 6.0
Check tolerance	
cm3/1000s.	: 8.0
(B) SETTING OF IN. WITH GOVERNOR	JECTION PUMP
GUIDE SLEEVE POSIT	TION
control lever	
position degree	: FREE
Rated speed rpm	: 800
Rack travel in mm	: 0.50 : +- 0.20
Tolerance mm	: + 0.20
governor spring	
pre-tension	
click setting x	: 4.00
FULL LOAD DELIVERY	Y AT FULL LOAD STOP
Rated speed rpm	AT FULL LOAD STOP
Rated speed rpm Aneroid pressure	: 1250
Rated speed rpm Aneroid pressure hPa	
Rated speed rpm Aneroid pressure hPa Del. quantity	: 1250 : -
Rated speed rpm Aneroid pressure hPa	: 1250
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes	: 1250 : -
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	: 1250 : - : 122.0
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 1250 : - : 122.0
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed	: 1250 : - : 122.0 : ← 1.0
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance	: 1250 : - : 122.0 : ← 1.0 : ← 3.5
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes	: 1250 : - : 122.0 : ← 1.0
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance	: 1250 : - : 122.0 : ← 1.0 : ← 3.5 : 4.0
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes	: 1250 : - : 122.0 : ← 1.0 : ← 3.5

control lever position degree tolerance degree	: 106.0 : +- 4.0
RATED SPEED rack travel man Rated speed rpm Tolerance 1/min	: 11.00 : 1295 : ← 5
rack travel mm	: 4.00
Rated speed rpm	: 1370
Tolerance 1/min	: + 15
rack travel mm	: 0.85
Tolerance mm	: +- 0.55
Rated speed rpm	: 1525
rack travel mm	: 4.00
Rated speed rpm	: 1375

OM	T	_
4 104	TDI	-

control lever		
position degree tolerance degree	: : +-	0.0 4.0
	•	

# Setting point w/out bumper spring

Rated speed rpm	:	400
rack travel mm	:	5.00
Tolerance mm	: +	- 0.10

# Testing:

Rated speed rpm	:	40อ
rack travel mm	:	5.50
Tolerance mm	: +	- 0.10
rack travel mm	:	2.00
Rated speed rpm	:	500
Tolerance 1/min	• +	_ 30

# TORQUE CONTROL

Rated speed rpm rack travel mm Tolerance mm	: :	1250 12.00 ⊢ 0.05
Rated speed rpm	:	750

Rated speed rpm : 750
rack travel mm : 12.60
Tolerance mm : +- 0.10

Start interlock

### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : ~ 750

Del. quantity

cm3/1000 strokes : 124.5

Tolerance

cm3/1000 strokes : +- 2.0

Check tolerance

cm3/1000s. : ← 4.0

### STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.00 Tolerance mm : + 1.00

Del. quantity

cm3/1000 strokes : 145.0

Tolerance

cm3/1000 strokes : +- 10.0

Check tolerance

cm3/1000s. :  $\leftarrow$  13.0

### LOW IDLE

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 19.0

Tolerance

cm3/1000 strokes : +- 2.0

Check tolerance

cm3/1000s. : +- 4.5

Spreed

Tolerance

cm3/1000 strokes : 6.0

Check tolerance

cm3/1000s. : 8.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 24.01.97 Test oil : ISO 4113

Combination No. : 0 400 866 208AE

Injection pump Pump designation : EP type number

Governor

Governer design. : Governer no.

Cust. part No. : 3921137

Customer-spec. information Customer : CDC Motor : 6 CT

### TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet

temp. °C 40 Tolerance °C

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde

: 1 688 901 017 assembly

Opening pressure

208.5 bar : <del>+-</del> 1.5 Tolerance bar

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant.

per values \_\_\_\_\_

### BEGINNING OF DELIVERY

Test pressure bar : 28.0 Tolerance bar : + 1.0

Firing order : 1-5-3-6-2-

: 0-62-120-180-240 Phasing

Tolerance : **←** 0.50

Check

tolerance 'NW : **←** 0.75

Start of delivery mark

\*NW after s.o.d. : 10.00

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.35 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 106.5

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

: +- 3.5 cm3/1000s.

Spreed

Tolerance

cm3/1000 strokes : 4.0

Check tolerance

cm3/1000s. 6.5

F06

Rated speed rpm	: 400
Rack travel in mm	
Tolerance mm Del. quantity	: +- 0.10
cm3/1000 strokes	: 18.0
Tolerance cm3/1000 strokes	: + 2.0
Check tolerance cm3/1000s.	: ← 4.5
Spreed	4.5
Tolerance cm3/1000 strokes	: 6.0
Check tolerance	
cm3/1000S.	: 8.0
(B) SETTING OF IN. WITH GOVERNOR	JECTION PUMP
GUIDE SLEEVE POSIT	TION
control lever position degree Rated speed rpm	
Rack travel in mm Tolerance mm	: 0.50 : + 6.20
governor spring pre-tension click setting x	: 2.75
FULL LOAD DELIVERY	AT FULL LOAD STOP
Rated speed rpm	: 1100
Aneroid pressure hPa	
Del. quantity	
cm3/1000 strokes Tolerance	: 106.5
cm3/1000 strokes	: ← 1.0
Check tolerance cm3/1000s.	: ← 3.5
Spreed	
Spreed Tolerance cm3/1000 strokes	• 4.n
•	: 4.0 : 6.5

control lever position degree tolerance degree	: 96.0 : + 4.0
RATED SPEED rack travel mm Rated speed rpm Tolerance 1/min	: 10.30 : 1145 : + 5
rack travel mm	: 4.00
Rated speed rpm	: 1205
Tolerance 1/min	: +- 15
rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1360
rack travel mm	: 4.00
Rated speed rpm	: 1210

011	TDI	400
1114	1111	- 1-

control lever		
position degree	:	77.0
tolerance degree	: +-	4.0

## Setting point w/out bumper spring

Rated speed rom	:	400
rack travel mm	:	5.00
Tolerance mm	: +	-0.10

### Testing:

Rated speed rpm	: 400
rack travel mm	: 5.50
Tolerance mm	: + 0.10
rack travel mm	: 2.00
Rated speed rpm	: 480
Tolerance 1/min	: + 30

TORQUE CONTROL		
Rated speed rpm	:	1100
rack travel mm	:	11.35
Tolerance mm	: -	<b>⊢</b> 0.05

## Start interlock

### STARTING FUEL DELIVERY

Rated speed rpm 100 20.00 rack travel mm Tolerance mm : +- 1.00 Del. quantity cm3/1000 strokes : 145.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  10.0

Check tolerance

cm3/1000s. : ← 13.0

### LOW IDLE

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 18.0

Tolerance

cm3/1000 strokes : +-2.0

Check tolerance

cm3/1000s. : **←** 4.5

Spreed

Tolerance

cm3/1000 strokes : 6.0

Check tolerance

cm3/1000s. : 8.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 24.01.97 Test oil : ISO 4113

Combination No. : 0 400 866 208AG

Injection pump Pump designation : EP type number

Governor

Governer design. : Governer no.

Cust. part No. : 3915955

Customer-spec. information Customer : CDC Motor : 5 CT

#### TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet

temp. °C 40 Tolerance °C

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

: 1 688 901 017 assembly

Opening pressure

208.5 bar Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0

Test nozzle holde

x length mm : 600 REMARKS (A) INJECTION PUMP SETTING VALUES Set equal delivery quant. per values \_\_\_\_\_ BEGINNING OF DELIVERY Test pressure bar : 28.0 Tolerance bar : + 1.0 Firing order : 1-5- 3- 6- 2-: 4 

Check

tolerance \*NW : + 0.75

Start of delivery mark

\*NW after s.o.d. : 11.00

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.35 Tolerance mm : +- 0.05

Dei. quantity

cm3/1000 strokes : 106.5

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance

cm3/1000s. : +- 3.5

Spreed

Tolerance

cm3/1000 strokes : 4.0

Check tolerance

cm3/1000s. : 6.5

F09

Rated speed rpm	: 400
Rack travel in mm Tolerance mm	: 5.90 : +- 0.10
Del. quantity cm3/1000 strokes Tolerance	: 18.0
cm3/1000 strokes Check tolerance	
cm3/1000S. Spreed Tolerance	: +- 4.5
cm3/1900 strokes Check tolerance	: 6.0
cm3/1000s.	: 8.0
(B) SETTING OF IN. WITH GOVERNOR	JECTION PUMP
GUIDE SLEEVE POST	TION
control lever position degree Rated speed rpm	
Rack travel in mm Tolerance mm	: 0.50 : +- 0.20
governor spring pre-tension click setting x	: 2.75
FULL LOAD DELIVERY	Y AT FULL LOAD STOP
Rated speed rom Ameroid pressure	: 1160
hPa Del. quantity cm3/1000 strokes	: -
Tolerance cm3/1000 strokes	: + 1.0
Check tolerance cm3/1000s. Spreed	: +- 3.5
Tolerance cm3/1000 strokes	: 4.0
Check tolerance cm3/1000s.	: 6.5

р	ontrol lever osition degree olerance degree	:	+-	96.0 4.0
r R	ATED SPEED ack travel mm ated speed rpm olerance 1/min	:		10.30 145 5
R	ack travel mm ated speed rpm olerance 1/min	:	1; +_	4.00 205 15
T	rack travel mm Tolerance num Hated speed rpm	: :	<del>-</del> 1:	0.85 0.55 360
	ack travel mm ated speed rpm	:	1:	4.00 210

ı	UM	TDI	F

control lever		
position degree	:	77.0
tolerance degree	: +-	4.0

# Setting point w/out humper spring

Rated speed rpm	:	400
rack travel mm	:	5,40
Tolerance mm	: +	- 0.10

# Testing:

Rated speed rpm	:	400
rack travel mm Tolerance mm	: : +-	5.90 0.10
rack travel mm	:	2.00

rack travel mm	:	2.00
Rated speed rpm	:	480
Tolerance 1/min	: +	<b>⊢</b> 30

## TORQUE CONTROL

Rated speed rpm	:	1100
rack travel mm	:	11.35
Tolerance mm	: -	0.05

# Start interlock

### STARTING FUEL DELIVERY

Reted speed rpm : 100
rack travel mm : 20.00
Tolerance mm : + 1.00
Del. quantity
cm3/1000 strokes : 145.0
Tolerance
cm3/1000 strokes : + 10.0
Check tolerance
cm3/1000s. : + 13.0

### LOW IDLE

400 Rated speed rpm : Del. quantity cm3/1000 strokes : 18.0 Tolerance cm3/1000 strokes : +-2.0 Check tolerance cm3/1000s. 4.5 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s.8.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 24,01,97 : ISO 4113 Test oil

Combination No. : 0 400 866 208AH

Injection pump Pump designation : EP type number

Governor

Governer design. : Governer no.

Cust. part No. : 3915965

Customer-spec. information Customer : CDC : 6 CT Motor

#### TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet

temp. °C Tolerance °C

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde

: 1 688 901 100 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant.

per values \_\_\_\_\_

### BEGINNING OF DELIVERY

Test pressure bar : 28.0 Tolerance bar : + 1.0

Firing order : 1-5-3-6-2-

: 4

Tolerance : 0-60-120-180-240

Check

tolerance \*NW : **←** 0.75

Start of delivery mark

\*NW after s.o.d. : 11.00

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.05 Tolerance mm : ← 0.05

Del. quantity

cm3/1000 strokes : 113.5

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

: **←** 3.5 cm3/1000s.

Spreed

Tolerance

cm3/1000 strokes : 4.0

Check tolerance

cm3/1000s.6.5

~	400
Rated speed rpm	: 400
Rack travel in mm	
Tolerance mm Del. quantity	: ← 0.10
cm3/1000 strokes	: 17.0
Tolerance	
cm3/1000 strokes Check tolerance	: ← 2.0
cm3/1000s.	: +- 4.5
Spreed	
Tolerance cm2/1000 strokes	: 6.G
Check tolerance	. 0.0
cm3/1000s.	: 8.0
(B) SETTING OF IN	ISCTTON PHIMP
WITH GOVERNOR	0001101-1-51-11
GUIDE SLEEVE POSI	TION
MOTHE REEAE LOST	1 A 🗸 1 A
control lever	
position degree	: FREE
Rated speed rpm	
Rack travel in mm	: 0.50
Tolerance mm	· + 0.20
governor spring	
pre-tension	
	: 2.00
pre-tension	: 2.00
pre-tension click setting x	: 2.00 Y AT FULL LOAD STOP
pre-tension click setting x FULL LOAD DELIVER'	
pre-tension click setting x FULL LOAD DELIVER' Rated speed rpm Aneroid pressure	Y AT FULL LOAD STOP
FULL LOAD DELIVER' Rated speed rpm Aneroid pressure hPa	Y AT FULL LOAD STOP
pre-tension click setting x FULL LOAD DELIVER' Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes	Y AT FULL LOAD STOP
pre-tension click setting x FULL LOAD DELIVER' Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance	Y AT FULL LOAD STOP : 1100 : - : 113.5
re-tension click setting x FULL LOAD DELIVER' Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	Y AT FULL LOAD STOP : 1100 : -
FULL LOAD DELIVER' Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	Y AT FULL LOAD STOP : 1100 : - : 113.5
FULL LOAD DELIVER' Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed	Y AT FULL LOAD STOP  : 1100  : -  : 113.5  :   : 1.0
pre-tension click setting x FULL LOAD DELIVER' Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance	Y AT FULL LOAD STOP : 1100 : - : 113.5 : + 1.0 : + 3.5
FULL LOAD DELIVER' Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed	Y AT FULL LOAD STOP  : 1100  : -  : 113.5  :   1.0

control lever position degree tolerance degree	: 96.0 : + 4.0
RATED SPEED rack travel mm Rated speed rpm Tolerance 1/min	: 11.00 : 1145 : ← 5
rack travel mm Rated speed rpm Tolerance 1/min	: 4.00 : 1200 : ← 15
rack travel mm Tolerance mm Rated speed rpm	: 0.85 : +- 0.55 : 1350
rack travel mm Rated speed rpm	: 4.00 : 1205
LOW IDLE	
control lever position degree tolerance degree	: 75.0 : +- 4.0
Setting point w/o	ut bumper spring
Rated speed rpm rack travel mm Tolerance mm	: 400 : 5.70 : ← 0.10
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 400 : 6.20 : ← 0.10
TORQUE CONTROL	**************************************
Rated speed rpm rack travel mm Tolerance mm	: 1100 : 12.05 : ← 0.05
Rated speed rpm rack travel mm Tolerance mm	: 750 : 13.50 : + 0.10
Start interlock	

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

Rated speed rpm : 750

Del. quantity

cm3/1000 strokes : 135.5

Tolerance

cm3/1000 strokes : + 2.0

Check tolerance

cm3/1000s. :  $\leftarrow$  4.0

### STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.00 Tolerance mm : + 1.00

Del. quantity

cm3/1000 strokes : 145.0

Tolerance

cm3/1000 strokes : + 10.0

Check tolerance

cm3/1000s. :  $\leftarrow$  13.0

### LOW IDLE

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 17.0

Tolerance

cm3/1000 strokes : +- 2.0

Check tolerance

cm3/1000s. : +- 4.5

Spreed

Tolerance cm3/1000 strokes : 6.0

Check tolerance

cm3/1000s. : 8.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 22.01.97 Test oil : ISO 4113

Combination No. : 0 400 874 248

Injection pump

Pump designation : PES4A90D410RS2728 EP type number : 0 410 894 030

Governor

Governer design. : RSV350...750A0C2240

: 3l. Governer no. : 0 420 232 559

Cust. part No. :

Customer-spec. information Customer : MB-NFZ : 0M364 Motor Power KW : 39.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C temp. \*C : 40
Tolerance \*C : +- 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde sembly : 0 681 343 009

Opening pressure that the state of the state

Test Lines : 1 680 750 015

Outside diameter : 6.0

Tolerance

Spreed

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant.

x inside diameter: 3.0 x length mm : 600

per values \_\_\_\_\_

REMARKS

### BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 2.30 Tolerance mm : ← 0.05 Check tolerance ma : + 0.10

Rack travel in mm : 10.50 Tolerance mm :  $\leftarrow$  1.50

Firing order : 1-3-4-2

Phasing : 0-90-180-270 Tolerance : +- 0.50

Check

tolerance \*NW : +- 0.75

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.00 Tolerance mm : + 0.05

Del. quantity cm3/1000 strokes : 58.0

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance cm3/1000s. : +- 3.0

Tolerance cm3/1000 strokes : 3.0	Check tolerance cm3/1000s. : 4.5
Check tolerance cm3/1000s. : 4.5	
	CONTROL LEVER
Rated speed rpm : 350	<pre>control lever position degree : 80.0 tolerance degree : +- 4.0</pre>
Rack travel in mm : 8.60 Tolerance mm : + 0.10 Del. quantity	ASSEMBLY GOVERNOR SETTING
cm3/1000 strokes : 12.0 Tolerance	+
cm3/1000 strokes : +- 2.0 Check tolerance	+ Rated speed rpm : 750 + rack travel mm : 11.00
cm3/1000s. : + 4.0 Spreed	Rated speed rpm : 784 Tolerance 1/min : +- 4
Tolerance cm3/1000 strokes : 2.5	rack travel mm : 4.00
Check tolerance cm3/1000s. : 4.5	rack travel mm : 0.85 Tolerance mm : +- 0.55
	Rated speed rpm : 850
(3) SETTING OF INJECTION PUMP WITH GOVERNOR	Rated speed rpm : 751 rack travel mm : 11.00
GUIDE SLEEVE POSITION	Rated speed rpm : 785 Tolerance 1/min : +- 4 rack travel mm : 4.00
control lever position degree : - 3 Rated speed rpm : 800	rack travel mm : 0.85 Tolerance mm : + 0.55 Rated speed rpm : 850
Rack travel in mm : 0.50 Tolerance mm : + 0.20 governor spring	Rated speed rpm : 752 rack travel mm : 11.00
pre-tension click setting x : 2.00	Rated speed rpm : 786 Tolerance 1/min : + 4 rack travel mm : 4.00
FULL LOAD DELIVERY AT FULL LOAD STOP	rack travel mm : 0.85
Rated speed rpm : 700 Aneroid pressure	Tolerance mm : + 0.55 Rated speed rpm : 850
hPa : - Del. quantity	Rated speed rpm : 753
cm3/1000 strokes : 58.0 Tolerance	rack travel mm : 11.00
cm3/1000 strokes : +- 1.0 Check tolerance	Rated speed rpm : 787 Tolerance 1/min : +- 4
cm3/1000s. : +- 3.0 Spreed	rack travel mm : 4.00
Tolerance cm3/1000 strokes : 3.0	rack travel mm : 0.85 Tolerance mm : + 0.55 Rated speed rpm : 850

Rated speed rpm rack travel mm	: 754 : 11.00
Rated speed rpm Tolerance 1/min rack travel mm	: +- 4
rack travel mm Tolerance mm Rated speed rpm	: 0.85 : ← 0.55 : 850
Rated speed rpm rack travel mm	: 755 : 11.00
Rated speed rpm Tolerance 1/min rack travel mm	
rack travel mm Tolerance mm Rated speed rpm	: 0.85 : ← 0.55 : 850
LOW IDLE	
control lever position degree tolerance degree	: 66.0 : + 4.0
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 350 : €.60 : ← 0.10
rack travel mm Rated speed rpm Tolenance 1/mir:	: 2.00 : 400 : 4- 15
Rated speed rpm	: 100
CRT mm min.	: > 19.50
SET IDLE AUXILIAR	Y SPRING
Rated speed rpm	: 100
TORQUE CONTROL	
Rated speed rpm rack travel mm Tolerance mm	: 700 : 12.00 : + 0.05

STARTING FUEL DEL	.IVERY	
Rated speed rpm	:	100 16.70
Tolerance mm	: +-	0.20
Del. quantity cm3/1000 strokes	•	83.0
Tolerance cm3/1000 strokes	: +-	5.0
Check tolerance cm3/1000s.	: +	8.0
-		
LOW IDLE		
Rated speed rpm Del. quantity	•	350
cm3/1000 strokes	•	12.0
cm3/1000 strokes Check tolerance	: +-	2.0
THEIR TOTELANCE		
cm3/1000S. Spreed	: +	4.0
cm3/1000s. Spreed Tolerance	: +	2.5

End of test specification sheet

Start interlock

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 22.01.97 Test oil : ISO 4113

Combination No. : 0 402 036 762

Indection pump

Pump designation : PES6P110A12URS3353 EP type number : 0 412 016 752

Governor

Governer design. : RQV450...1100PA1233

: 1K

: 0 421 815 479 Governer no.

Cust. part No. : 3926776

Customer-spec. information Customer : CDC : 6CTA Motor Power KW : 194.0

### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C 40 Tolerance °C

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 103 assembly

Opening pressure

208.5 bar Tolerance bar 1.5

: 1 680 750 015 Test lines

Outside diameter : 6.0

x inside diameter : 3.0 x length mm :

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

### BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Firing order : 1-5- 3- 6- 2-

: 0-60-120-180-240 Phasing Tolerance

: +- 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery blocking

\*NW after s.o.d. : 8.00 : +- 0.50 Tolerance

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack

travel 13.00 Difference \* CS : 1.20

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.15 : +- 0.05 Tolerance mm

Del. quantity

cm3/1000 strokes : 206.5

Tolerance cm3/1000 strokes : +- 1.0	FULL LOAD DELIVERY AT FULL LOAD STOP
Check tolerance cm3/1000s. : +- 4.0	Rated speed rpm : 1000 Aneroid pressure
Spreed	hPa : 1200 Del. quantity
Tolerance cm3/1000 strokes : 8.0	cm3/1000 strokes : 206.5 Tolerance cm3/1000 strokes : +- 1.0
Check tolerance cm3/1000s. : 12.0	Check tolerance - cm3/1000s. : + 4.0 - Spreed
Rated speed rpm : 500	Tolerance - cm3/1000 strokes : 8.0 - Check tolerance - cm3/1000s. : 12.0
Rack travel in mm : 6.00 Tolerance mm : +- 0.20	
Del. quantity cm3/1000 strokes : 22.5 Tolerance	CONTROL LEVER
cm3/1000 strokes : +- 3.0 Check tolerance cm3/1000s. : +- 5.0	control lever position degree : 117.0 tolerance degree : +- 6.0
Spreed Tolerance cm3/1000 strokes : 4.0 Check tolerance	RATED SPEED rack travel mm : 11.45 Rated speed rpm : 1170
cm3/100Cs. : 3.0	Tolerance 1/min : +- 15
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 7.95 Rated speed rpm : 1230 Tolerance 1/min : + 5
GUIDE SLEEVE TRAVEL	Tolerance mm : 0.50 Rated speed rpm : 1350
Rated speed rpm : 1214 guide sleeve travel mm : 8.09	Adted speed pill . 1330
Tolerance mm : +- 0.15	LOW IDLE
Rated speed rpm : 500 guide sleeve	†
travel mm : 1.82 Tolerance mm : + 0.25	<pre>control lever position degree : 79.0 tolerance degree : + 6.0</pre>
Rated speed rpm : 890 guide sleeve travel mm : 4.75	Control lever difference Grad: 38.0
Tolerance mm : + 0.25	tolerance degree : + 6.0
Rated speed rpm : 1570 guide sleeve	Testing:
travel mm : 13.50 Tolerance mm : +- 0.50	Rated speed rpm : 500 rack travel mm : 6.00 Tolerance mm : +- 0.20

travel mm : 12.20 ance mm : + 0.30  ure hPa : 580 travel mm : 11.20 ance mm : + 0.20  travel mm : 11.20 ance mm : + 0.20  interlock  speed rpm : > 100 speed rpm : > 380  LOW IDLE  1/min : > 80	ated speed rpm	: 400	+
Speed rpm : 500		7.50	+ Aneroid pressure
Speed rpm : 500	man min.	: > 7.50	+ hPa : 1200
Cm3/1000 strokes : 197.5	acl speed and	. 500	
Tolerance	ta speed rpm	; 500	pel, quantity
Speed rpm : 100C			
Speed rpm : 100C	QUE CONTROL		
speed rpm   1000			
travel mm : 13.15 ance mm : + 0.05 Tolerance cm3/1000 strokes : 8.0 Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0 Ance mm : + 0.20 Ance mm : + 0.20 Ance mm : + 0.20 Ance mm : + 0.10 Rated speed rpm : 1100 Strokes : 190.5 Tolerance cm3/1000 strokes : 190.5 Tolerance cm3/1000s strokes : + 2.0 Check tolerance cm3/1000s strokes : + 5.0 Rated speed rpm : 1000 Strokes : + 5.0 Rated speed rpm : 1000 Strokes : + 1000 Strokes : + 1000 Strokes : 124.0 Tolerance cm3/1000 strokes : 124.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s strokes : + 1.0 Check tolerance cm3/1000s strokes : + 1.0 Check tolerance cm3/1000s strokes : + 1.0 Check tolerance cm3/1000s strokes : + 1.0 Check tolerance cm3/1000s strokes : + 1.0 Check tolerance cm3/1000s strokes : + 1.0 Check tolerance cm3/1000s strokes : + 2.0 Tolerance mm : + 0.30 Tolerance mm : + 0.50 Del. quantity cm3/1000 strokes : + 20.0 Tolerance mm : + 0.50 Del. quantity cm3/1000 strokes : + 20.0 Check tolerance cm3/1000s strokes : + 20.0 Tolerance cm3/1000s strokes : + 20.0 Check tolerance cm3/1000s strokes : + 2	d speed rpm	: 100C	
Speed rpm : 750	travel mm	: 13.15	Spreed
Speed rpm : 750	rance mm	: ← 0.05	
travel mm : 12.55 ance mm : + 0.20    speed rpm : 1100			+ cm3/1000 strokes : 8.0
Speed rpm : 1100			
Aneroid pressure   hPa	travel mm	: 12.55	+ cm3/1000s. : 12.0
Speed rpm : 1100	rance mm	: <b>←</b> 0.20	. 🕇
travel mm : 12.60 ance mm : + 0.10    Del. quantity		A A = =	
travel mm : 12.60 ance mm : + 0.10    Del. quantity   cm3/1000 strokes : 190.5	ed speed rpm	: 1100	
Del. quantity	: travel mm	: 12.60	
Tolerance	erance mm	· + 0.10	
ID/ALTITUDE   NSATOR TEST   Cm3/1000 strokes : \( \sim 2.0 \) Check tolerance cm3/1000s. : \( \sim 5.0 \)   STARTING FUEL DELIVERY   Speed rpm : 1000   Tolerance cm3/1000 strokes : \( \sim 2.0 \)   Tolera			
Check tolerance   cm3/1000s.   : + 5.0			
Cm3/1000S. : + 5.0			
Aneroid pressure   hPa	ENSATOR TEST		
Speed rpm : 1000			+ cm3/1000s. : +- 5.0
Speed rpm : 1000	TAIC		Amazaid amazassas
Speed rpm : 1000   Rated speed rpm : 1000   Del. quantity   cm3/1000 strokes : 124.6   Tolerance   cm3/1000 strokes : 124.6   Tolerance   cm3/1000 strokes : + 1.0   Check tolerance   cm3/1000s.	TIAO		
ure hPa       : 1200       Del. quantity       : m3/1000 strokes : 124.6         ure hPa       : -       rolerance       : m3/1000 strokes : + 1.0         speed rpm       : 10.15       check tolerance       cm3/1000s.       : + 4.0         REMENT       STARTING FUEL DELIVERY         ure hPa       : 720       Rated speed rpm : 100       rack travel mm : 21.00         ance mm       : + 0.30       Tolerance mm : + 0.50         ure hPa       : 580       cm3/1000 strokes : 161.0         travel mm       : 11.20       tolerance         ance mm       : + 0.20       tolerance         interlock       cm3/1000 strokes : + 20.0         speed rpm       : > 100         speed rpm       : > 380         1/min       : > 80         1/min       : < 390	d epead	. 1000	
ure hPa : - speed rpm : 1000 travel mm : 10.15 ance mm : + 0.20  REMENT  speed rpm : 1000  respeed rpm : 1000  REMENT  speed rpm : 1000  speed rpm : 1000  respeed rpm : 1000  stravel mm : 12.20 ance mm : + 0.30  respeed rpm : 100  respeed rp			
Tolerance   Tole	sure nra	; 1200	
Speed rpm : 1000	auna hDa		
### Taylor   Total   T	Sure nra	•	
REMENT         speed rpm : 1000       STARTING FUEL DELIVERY         ure hPa : 720       Rated speed rpm : 100         travel mm : 12.20       rack travel mm : 21.00         ance mm : + 0.30       Tolerance mm : + 0.50         ure hPa : 580       cm3/1000 strokes : 161.0         travel mm : 11.20       Tolerance         ance mm : + 0.20       cm3/1000 strokes : + 20.0         interlock       cm3/1000s. : + 25.0         speed rpm : > 100       speed rpm : > 380         1/min : > 80       LOW IDLE         1/min : < 390	a sheed ubus	• 1000	
REMENT         speed rpm : 1000       STARTING FUEL DELIVERY         ure hPa : 720       Rated speed rpm : 100         travel mm : 12.20       rack travel mm : 21.00         ance mm : + 0.30       Tolerance mm : + 0.50         ure hPa : 580       cm3/1000 strokes : 161.0         travel mm : 11.20       Tolerance         ance mm : + 0.20       Tolerance         interlock       cm3/1000 strokes : + 20.0         speed rpm : > 100       cm3/1000s. : + 25.0         speed rpm : > 380       LOW IDLE         1/min : < 390	CITAVE C MIN	i 10.12 	
speed rpm       : 1000       STARTING FUEL DELIVERY         ure hPa       : 720       Rated speed rpm       : 100         travel mm       : 12.20       rack travel mm       : 21.00         ance mm       : + 0.30       Tolerance mm       : + 0.50         ure hPa       : 580       cm3/1000 strokes       : 161.0         travel mm       : 1.20       Tolerance       cm3/1000 strokes       : + 20.0         check tolerance       cm3/1000s       : + 25.0         speed rpm       : > 100       speed rpm       : > 25.0         1/min       : > 80       Rated speed rpm       : 500         1/min       : < 390	dire iiii	, T- U. ZU	I clib/10005. : +- 4.0
speed rpm : 1000       STARTING FUEL DELIVERY         ure hPa : 720       Rated speed rpm : 100         travel mm : 12.20       rack travel mm : 21.00         ance mm : + 0.30       Tolerance mm : + 0.50         ure hPa : 580       cm3/1000 strokes : 161.0         travel mm : 11.20       Tolerance         ance mm : + 0.20       cm3/1000 strokes : + 20.0         check tolerance       cm3/1000s. : + 25.0         speed rpm : > 100       speed rpm : < 380	IREMENT		I
ure hPa       : 720       Rated speed rpm       : 100         travel mm       : 12.20       rack travel mm       : 21.00         ance mm       : + 0.30       Tolerance mm       : + 0.50         bel. quantity       cm3/1000 strokes       : 161.0         travel mm       : 11.20       Tolerance       cm3/1000 strokes       : + 20.0         check tolerance       cm3/1000s       : + 25.0         speed rpm       : > 100       speed rpm       : < 25.0	NO CIT		
travel mm : 12.20 ance mm : + 0.30  ance mm : + 0.30  ure hPa : 580 travel mm : 11.20 ance mm : + 0.20  travel mm : 11.20 ance mm : + 0.20  interlock  speed rpm : > 100 speed rpm : < 380  1/min : < 390  1/min : < 390  rack travel mm : 21.00 rolerance mm : + 0.50  Del. quantity cm3/1000 strokes : + 20.0 Check tolerance cm3/1000s. : + 25.0  Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 22.5 Tolerance	d speed rpm	: 1000	STARTING FUEL DELIVERY
travel mm : 12.20 ance mm : + 0.30  ance mm : + 0.30  ure hPa : 580 travel mm : 11.20 ance mm : + 0.20  travel mm : 11.20 ance mm : + 0.20  interlock  speed rpm : > 100 speed rpm : < 380  1/min : < 390  1/min : < 390  rack travel mm : 21.00  rolerance mm : + 0.50  Del. quantity cm3/1000 strokes : + 20.0 Check tolerance cm3/1000s. : + 25.0  Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 22.5 Tolerance	ssure hPa	: 720	Rated speed rom : 100
ance mm : + 0.30  Tolerance mm : + 0.50  Del. quantity cm3/1000 strokes : 161.0  Tolerance cm3/1000 strokes : + 20.0  Check tolerance cm3/1000s. : + 25.0  speed rpm : > 100 speed rpm : < 380  1/min : > 80  1/min : < 390  Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 22.5 Tolerance			
Del. quantity cm3/1000 strokes : 161.0 Tolerance ance mm : + 0.20  interlock  speed rpm : > 100 speed rpm : < 380  1/min : < 390  Del. quantity cm3/1000 strokes : 161.0 Tolerance cm3/1000 strokes : + 20.0 Check tolerance cm3/1000s. : + 25.0  Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 22.5 Tolerance	rance mm		
cm3/1000 strokes : 161.0   travel mm : 11.20   Tolerance   cm3/1000 strokes : + 20.0   Check tolerance   cm3/1000s. : + 25.0   cm3/1000s.   cm3/1000s. : + 25.0   cm3/1000s.			
travel mm : 11.20	ure hPa	: 580	
ance mm : + 0.20	travel mm		
finterlock	ance mm		
interlock cm3/1000s. : + 25.0  speed rpm : > 100 speed rpm : < 380  1/min : > 80  1/min : < 390  Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 22.5 Tolerance			
Speed rpm : < 380   LOW IDLE   LOW IDLE   Rated speed rpm : 500   Del. quantity   cm3/1000 strokes : 22.5   Tolerance   Tole	interlock		
Speed rpm : < 380		. \ 100	†
1/min :> 80  1/min :< 390  Rated speed rpm : 500  Del. quantity  cm3/1000 strokes : 22.5  Tolerance			†
1/min :> 80	speea rpm	: < 580	†
1/min :> 80			LOU TOLE
1/min : < 390 + Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 22.5 Tolerance	k d 1/måm	. > 00	† LOW IDLE
1/min : < 390 + Del. quantity + cm3/1000 strokes : 22.5 + Tolerance		: > 60	Poted aread area . 500
			The state of the s
	( d 1/min	. / 700	+ UPI GURDTITV
	1/min	: < 390	
	1/min	: < 390	+ cm3/1000 strokes : 22.5

Check tolerance
cm3/1000s. : -- 5.0
Spreed
Tolerance
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000s. : 8.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 29.01.97 Test oil : ISO 4113

Combination No. : 0 402 736 869

Injection pump

Pump designation : PES6P12DA12ORS7352 EP type number : 0 412 726 923

Governor

Governer design. : RQV350...1000PA1174K

Governer no. : 0 421 815 440

Cust. part No. : 3928155

Customer-spec. information Sustamer : CDC Motor : 6CTA-A Power KW : 205.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

vemp. °C : +0 : +- 2.0 Tolerance \*C

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0 Tolerance bar :  $\leftarrow$  0.1

Test nozzle holde

: 1 688 901 103 assembly

Opening pressure

208.5 bar Tolerance bar  $: \leftarrow 1.5$ 

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

### BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : + 1.0

Prestroke mm : 4.00 Tolerance mm : +- 0.05 Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

Phasing Tolerance : +- 0.30

Check

tolerance \*HW : **←** 0.75

Start of delivery blocking

\*NW after s.o.d. : 5.50 Tolerance  $: \leftarrow 0.50$ 

Check

tolerance \*NW : + 0.75

Barrel no. : 1

### BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm: 15.15 Tolerance mm :  $\leftarrow$  0.05

Del. quantity	- guide steeve
cm3/1000 strokes : 235.0	- travel mm : 9.80
Tol. 200	Tolerance mm : +- 0.20
Tolerance cm3/1000 strokes : +- 1.0	·
CINCY TOOC SET ONES . 1. 1.0	- FULL LOAD DELIVERY AT FULL LOAD STOP
Check tolerance	•
cm3/1000s. : +- 4.0	- Rated speed rpm : 1000
000000	- Aneroid pressure
Spreed	- hPa : 1200 - Del. quantity
Tolerance	- cm3/1000 strokes : 235.0
cm3/1000 strakes : 5.0	- Tolerance
	- cm3/1000 strokes : +- 1.0
Check tolerance	- Check tolerance
cm3/1000s. : 9.0	- cm3/1000s. : +- 4.0 - Spreed
	- Tolerance
	- cm3/1000 strokes : 5.0
Rated speed rpm : 375	- Check tolerance
Del. quantity	- cm3/1000s. : 9.0
cm3/1000 strokes : 27.0	
cm3/1000 strokes : + 3.0	
Check tolerance	- CONTROL LEVER
cm3/1000s. : +- 5.0	•
Spreed	- control lever
Tolerance 8.0	- position degree : 118.0 - tolerance degree : + 6.0
Check tolerance	- toterance degree : - 0.0
cm3/1000s. : 12.0	- RATED SPEED
+	- rack travel mm : 13.50
(I) OFTING OF THEFOTIAL CHAP	- Rated speed rpm : 1155
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	- Tolerance 1/min : ← 15
WITH GOVERNOR	- - rack travel mm : 4.00
	- Rated speed rpm : 1300
GUIDE SLEEVE TRAVEL	Tolerance 1/min : + 5
Potent around non 1000	
Rated speed rpm : 1000 guide sleeve	- rack travel mm : 0.50 - Tolerance mm : +- 0.50
travel mm : 8.20	Rated speed rpm : 1400
Tolerance mm : + 0.10	•
250	•
Rated speed rpm : 350	
travel mm : 1.90	LOW IDLE
Tolerance mm : + 0.10	
+	•
Rated speed rpm : 600	control lever
guide sleeve travel mm : 5.30	- position degree : 70.0 - tolerance degree : +- 6.0
Tolerance mm : + 0.20	· Cote ance degree 0.0
+	· Control lever difference
Rated speed rpm : 450	- Grad : 49.0
guide sleeve	tolerance degree : + 6.0
travel mm : 3.30 Tolerance mm : ← 0.20	· · Testing:
10001 011111111111111111111111111111111	
Rated speed rpm : 1200	Rated speed rpm : 275
· ·	·

Rated speed rpm	: 425
·	
TORQUE CONTROL	
Rated speed rpm	
rack travel mm Tolerance mm	: 15.15 : +- 0.05
TOCET WITCE TIME	. • 0.05
Rated speed rpm rack travel mm	: 650 : 13.70
Tolerance mm	: 13.70 : + 0.20
Rated speed rpm	: 1100
rack travel mm	: 14.60
Tolerance mm	: <del>-</del> 0.10
ANEROID/ALTITUDE	
COMPENSATOR TEST	
SETTING	
Rated speed rpm	: 1000
Pressure hPa	: 1200
Pressure hPa	: -
Rated speed rpm rack travel mm	: 1000 : 9.70
Tolerance mm	: +- 0.20
MEASUREMENT	
Rated speed rpm	: 1000
Pressure hPa	: 825
rack travel mm Tolerance mm	: 13.80 : + 0.20
Pressure hPa rack travel mm	: 370 : 11.15
Tolerance mm	: 11.15 : +- 0.05
Start interlock	
Rated speed rpm	: > 100
Rated speed rpm	: < 290
Check	: > 80
speed 1/min Check	. / OU
speed 1/min	: < 300

Aneroid pressure			
hPa	:	1	200
Rated speed rpm	:		650
Del. quantity	•		
cm3/1000 strokes	:		210.5
Tolerance			
cm3/1000 strokes	:	+-	3.0
Check tolerance			
cm3/1000s.	:	+-	6.0
Spreed			
Tolerance			
cm3/1000 strokes	:		8.0
Check tolerance			42.0
cm3/1000s.	:		12.0
Aneroid pressure			
hPa	:		_
Rated speed rom	:	1	<b>06</b> 0
Del. quantity			
cm3/1000 strokes	:		99.0
Tolerance			
cm3/1000 strokes	•	+-	1.0
Check tolerance			
cm3/1000s.	•	+-	3.0
STARTING FUEL DEL	IVI	ERY	

STARTING FUEL DEL	IVE	RY	
Rated speed rpm rack travel mm Tolerance mm Del. quantity	:	+-	100 11.50 0.50
cm3/1000 strokes Tolerance	:		180.0
cm3/1000 strokes Check tolerance	:	+	20.0
cm3/1000s.	:	+-	25.0

LOW IDLE			
Rated speed rpm	:		375
Del. quantity cm3/1000 strokes	:		27.0
Tolerance	•		27.0
cm3/1000 strokes	:	+-	3.0
Check tolerance cm3/1000s.	:	+-	5.0
Spreed			
Tolerance cm3/1000 strokes	•		8.0
Check tolerance	•		0.0
cm3/1000S.	:		12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 24.01.97 Test oil : 24.01.97

Combination No. : 0 403 466 161

Injection pump

Pump designation : PES6MW100/120RS1240

EP type number : 0 413 406 239

Governor

Governer design. : RSV500...1100MW2A379

Governer no. : 0 420 085 262

Cust. part No. : 3926882

Customer-spec. information Customer : COC

Motor

: 6 CT Power KW : 161.0

### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C

40

Tolerance °C

÷ + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : +- 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

```
x inside diameter: 2.0
x length mm :
```

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

### BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 3.55
Tolerance mm : + 0.05

Check

tolerance mm : ← 0.10

Rack travel in mm: 10.50 Tolerance mm : ← 1.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240 Tolerance : +- 0.50

Check

tolerance \*NW

: +- 0.75

Start of delivery blocking

\*NW after s.o.d. : 8.50

Tolerance :  $\leftarrow$  0.50

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack

15.00

Difference \* CS : 1.50

BASIC SETTING

Rated speed rpm : 1100	
	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm: 11.80	Detail or at 4400
Tolerance mm : + 0.05	Rated speed rpm : 1100 Aneroid pressure
Del. quantity	nPa : 1200
cm3/1000 strokes : 142.0	Del. quantity
Tolerance	cm3/1000 strokes : 142.0 Tolerance
cm3/1000 strokes : + 1.0	cm3/1000 strokes : +- 1.0
+	Check tolerance
Check tolerance	cm3/1000s. : +- 4.0
cm3/1000s. : $\leftarrow$ 4.0	Spreed Tolerance
Spreed	cm3/1000 strokes : 4.0
+	Check tolerance
Tolerance tom3/1000 strokes : 4.0	cm3/1000s. : 7.5
cm3/1000 strokes : 4.0	
Check tolerance	
cm3/1000s. : 7.5	CONTROL LEVER
	control lever
1	position degree : 103.0
Rated speed rpm : 500	tolerance degree : + 4.0
Back thought in many 5 20	DATEN COCEN
Rack travel in mm : 5.20 + Tolerance mm : + 0.10 +	RATED SPEED rack travel mm : 10.90
Del. quantity	Rated speed rpm : 1160
cm3/1000 strokes : 21.5	Tolerance 1/min : + 5
Tolerance + 2.0 +	rack travel mm : 5.80
Check tolerance	Rated speed rpm : 1230
cm3/1000s. : + 4.5	Tolerance 1/min : + 5
Spreed	200
Tolerance + cm3/1000 strokes : 3.5 +	rack travel mm : 1.00 Tolerance mm : ÷- 0.70
Check tolerance	Rated speed rum : 1375
cm3/1000s. : 5.5	
İ	rack travel mm : 5.80 Rated speed rpm : 1235
(B) SETTING OF INJECTION PUMP	nated speed rpm : 1233
WITH GOVERNOR	
†	
	LOW IDLE
GUIDE SLEEVE POSITION	
†	control loves
control lever	control lever position degree : 83.0
position degree : -3	tolerance degree : + 4.0
Rated speed rpm : 800	
Rack travel in mm: 0.50	Control lever difference Grad : 20.0
Tolerance mm : + 0.20	tolerance degree : +- 6.0
+	·
governor spring	Setting point w/out bumper spring
pre-tension + click setting x : 4.00 +	Rated speed rpm : 500
Tion secting A . Tion	opood i piii

: 4.70 : +- 0.10
: 500 : 5.20 : ← 0.10
: 100
: > 19.00
: 1100 : 11.80 : + 0.05
: 750 : 12.60 : +- 0.10
: 1000 : 12.50 : ← 0.20
: 950 : 12.60 : ← 0.20
: 500 : 1200
: 1200 : - : 500 : 10.70
: 1200 : - : 500 : 10.70
: 1200 : - : 500 : 10.70 : ← 0.20
: 1200 : - : 500 : 10.70 : + 0.20 : 500 : 790 : 12.10

Ineroid pressure IPa	:	1200	
Rated speed rpm	:	950	
Del. quantity			
cm3/1000 strokes	:	153.0	
Tolerance			
cm3.1000 strokes	; +-	2.0	
Check tolerance cm3/1000s.	٠ ـــ	5.0	
Spreed		٠.٠	
Tolerance			
	:	6.0	
Check tolerance			
c <b>m</b> 3/1000s.	:	9.0	
Aneroid pressure			
nPa	:	_	
Rated speed ram	:	500	
Del. quantity			
cm3/1000 strokes	:	119.5	
Tolerance		4.0	
cm3/1000 strokes	: +-	1.0	
Check tolerance of the construction of the con		- 3.0	
CM3/ (UUU3.	;	3.0	

Rated speed rpm	:	100
rack travel mm	:	20.50
Tolerance mm	: +-	1.00
Del. quantity		
cm3/1000 strokes	:	145.5
Tolerance		
cm3/1000 strokes	: +-	10.0
Check tolerance		
cm3/1000S.	: +-	13.0

LOW IDLE	
Rated speed rpm Del. quantity	: 500
7 44 6 6 6 4 4	: 21.5
cm3/1000 strokes Check tolerance	: +- 2.0
cm3/1000s. Spreed Tolerance	: +- 4.5
cm3/1000 strokes	: 3.5

Check tolerance		
cm3/1000s.	:	5.5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 24.01.97 Test oil : ISO 4113

Combination No. : 0 403 466 169

Injection pump

Pump designation : PES6MW100/120RS1242

EP type number : 0 413 406 241

Governor

Governer design. : RSV500...1100MW5A385

Governer no. : 0 420 085 270

Cust. part No. : 3926885

Customer-spec. information Customer : CDC : 6 CTA Moto:

Power KW : 179.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C

Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0

Tolerance bar :  $\leftarrow$  0.1

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

: 208.5

Tolerance bar : +- 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

SEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : ← 1.0

Prestroke mm : 3.20 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm: 10.50

Tolerance mm : ← 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240 Tolerance : ← 0.50

Check

tolerance \*NW

: +- 0.75

Start of delivery blocking

\*NW after s.o.d. : 8.50

Tolerance : +- 0.50

Check

tolerance \*NW

: +- 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack

travel

15.00

Difference \* CS : 1.50

BASIC SETTING

GO2

Rated speed rpm	: 1100	
Rack travel in mm Tolerance mm	: 12.80	FULL LOAD DELIMERY AT FULL LOAD STOP  Rated speed rpm : 1100
Del. quantity		Aneroid pressure hPa : 1200
cm3/1000 strokes Tolerance	: 159.0	Del. quantity cm3/1000 strokes : 159.0 Tolerance
cm3/1000 strokes	: + 1.0	cm3/1000 strokés : +- 1.0 Check tolerance
Check tolerance cm3/1000s.	: ← 4.0	cm3/1000s. : +- 4.0 Spreed Tolerance
Spreed		cm3/1000 strokes : 4.0 Check tolerance
Tolerance cm3/1000 strokes	: 4.0	cm3/1000s. : 7.5
Check tolerance cm3/1000s.	: 7.5	CONTROL LEVER
		control lever
	+	position degree : 109.0
Rated speed rpm	: 500	tolerance degree : +- 4.0
Rack travel in mm		RATED SPEED
Tolerance mm	: + 0.10	rack travel mm : 11.80
Del. quantity cm3/1000 strokes	: 21.0	Rated speed rpm : 1170 Tolerance 1/min : +- 5
Tolerance	I	Toterance T/min : += 3
cm3/1000 strokes	: ← 2.0 +	rack travel mm : 7.00
Check tolerance	+	Rated speed rpm : 1230
cm3/1000s.	: ← 4.5	Tolerance 1/min : ← 5
Spreed Tolerance	Ĭ	rack travel mm : 1.00
cm3/1000 strokes	: 3.5	Tolerance mm : +- 0.70
Check tolerance	+	Rated speed rpm : 1300
cm3/1000s.	: 5.5	7.00
	Í	rack travel mm : 7.00 Rated speed rpm : 1230
(B) SETTING OF IN. WITH GOVERNOR	JECTION PUMP	Nated Speed (pin . 1230
GUIDE SLEEVE POSI	TION	LOW IDLE
	+	
control lever	<u>†</u>	control lever position degree : 85.0
position degree Rated speed rpm	: - 3	tolerance degree : + 4.0
	+	Control lever difference
Rack travel in mm Tolerance mm	: 0.50 : + 0.20	Grad : 24.0 tolerance degree : +- 6.0
governor spring pre-tension	Ī	Setting point w/out bumper spring
click setting x	: 3.50 +	Rated speed rpm : 500
c07		

Tolerance mm	: 4.60 : ← 0.10
Testing:	
Rated speed rpm	
rack travel mm Tolerance mm	: 5.10 : ← 0.10
Rated speed rpm	: 100
CRT mm min.	: > 19.00
TORQUE CONTROL	
Rated speed rpm	: 1100
rack travel mm Tolerance mm	: 12.30 : + 0.05
Rated speed rpm	
rack travel mm Tolerance mm	: 13.40 : + 0.20
Rated speed rpm	
rack travel mm Tolerance mm	: 13.30 : + 0.20
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	500
Rated speed rpm Pressure hPa	: 500 : 1200
Pressure hPa	: - : 500
Rated speed rpm rack travel mm Tolerance mm	: 500 : 10.80 : + 0.20
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa	: 900
rack travel mm Tolerance mm	: 13.15 : +- 0.20
	: 560
	: 11.50
Pressure hPa rack travel mm Tolerance mm	: <b>←</b> 0.20

Aneroid pressure			
hPa	:		1200
Rated speed rpm	:	•	1000
Del. quantity			
cm3/1000 strokes	:		169.0
Tolerance	•		
cm3/1000 strokes		+-	2.0
Check tolerance	•	•	2.0
cm3/1000s.			5.0
	•	_	5.0
Spreed			
Tolerance			
cm3/1000 strokes	:		6.0
Check tolerance			
cm3/1000s.	:		9.0
Aneroid pressure			
hPa	:		_
Rated speed rpm	:		500
Del. quantity			
cm3/1000 strokes	•		119.0
Tolerance	•		,
cm3/1000 strokes		4-	1.0
Check tolerance	•	•	1.0
cm3/1000s.		4	3.0
CM3/ 10005.	•	-	3.0

STARTING	FUEL	DEL:	IVERY
Rated sne	and re	200	

Rated speed rpm rack travel mm 20.50 : **←** 1.00 Tolerance mm Del. quantity cm3/1000 strokes : 140.0 Tolerance

100

cm3/1000 strokes :  $\leftarrow$  10.0

Check tolerance cm3/1000s. : +- 13.0

### LOW IDLE

Rated speed rpm	:		500
Del. quantity cm3/1000 strokes	:		21.0
Tolerance cm3/1000 strokes	:	+-	2.0
Check tolerance cm3/1000s.	:	+-	4.5
Spreed Tolerance			
cm3/1000 strokes Check tolerance	:		3.5
cm3/1000s.	:		5.5

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.01.97 Test oil : I30 4113

Combination No. : F 002 A0Z 040

Injection pump

Pump designation : PES4A95D320/3RS2880

EP type number : 9 410 037 214

Governor

Governer design. : RSV475...1100A0C920R

Governer no. : F 002 A20 240

Cust. part No. : 3930147

Customer-spec information Customer : CDC Motor : 4BT590 Power KW : 60.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test cil inier

temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

### BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 2.45
Tolerance mm : + 0.05

Check

tolerance mm : 4- 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-3-4-2

Phasing : 0-90-180-270
Tolerance : +- 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery blocking

\*NW after s.o.d. : 6.50 Tolerance : + 0.50

Check

tolerance  $^{\circ}NW$  : + 0.75

Barrel no. : 1

#### BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm: 9.85

Tolerance mm : + 0.05

Del. quantity cm3/1000 strokes : 80.0	+ Aneroid pressure + hPa : - - Del. quantity
Tolerance cm3/1000 strokes : +- 1.0	cm3/1000 strokes : 80.0 Tolerance
Charle And annual	cm3/1000 strokes : +- 1.0
Check tolerance cm3/1000s. : +- 3.0	+ Check tolerance + cm3/1000s. : +- 3.0 + Spreed
Spreed	Tolerance cm5/1000 strokes : 3.5
Tolerance cm3/1000 strokes : 3.5	Check tolerance cm3/1000s. : 6.0
Check tolerance cm3/1000s. : 6.0	CONTROL LEVER
	+ CONTROL LEVER
Rated speed rpm : 475	<pre>control lever position degree : 99.5 tolerance degree : + 4.0</pre>
Rack travel in mm : 5.50 Tolerance mm : + 0.10	+ RATED SPEED
Del. quantity	rack travel mm : 8.80
cm3/1000 strokes : 23.5 Tolerance	Rated speed rpm : 1165 Tolerance 1/min : +- 5
cm3/1000 strokes : +- 2.0	Total arice 17 milli
Check tolerance cm3/1000s. : +- 4.5	+ rack travel mm : 5.20 + Rated speed rpm : 1215
Spreed	Tolerance 1/min : + 5
Tolerance cm3/1000 strokes : 3.5	+ + rack travel mm : 0.85
Check tolerance	+ Tolerance mm : ⊢ 0.55
cm3/1000s. : 5.5	+ Rated speed rpm : 1350
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 5.20 Rated speed rpm : 1225
	‡
GUIDE SLEEVE POSITION	LOW IDLE
control lever	+ control lever
position degree : - 3	position degree : 81.0
Rated speed rpm : 800	tolerance degree : + 4.0
Rack travel in mm: 0.50	Control lever difference
Tolerance mm : + 0.20	+ Grad : 18.5 + tolerance degree : + 6.0
governor_spring	+
pre-tension click setting x : 4.25	Setting point w/out bumper spring
	Rated speed rpm : 475
FULL LOAD DELIVERY AT FULL LOAD STOP	rack travel mm : 5.00 Tolerance mm : + 0.10
Rated speed rpm : 1100	Testing:

Rated speed rpm : 475 rack travel mm : 5.50 : **←** 0.10 Tolerance mm Rated speed row : 100 CRT mm min. : > 19.00 TORQUE CONTROL Rated speed rpm : 1100 rack travel mm : 9.85
Tolerance mm : +- 0.05 Tolerance mm : +- 0.05 Rated speed rpm : 750 Start interlock STARTING FUEL DELIVERY Rated speed rpm : 100 rack travel mm : 20.50 : **←** 0.50 Tolerance mm Del. quantity cm3/1000 strokes : 121.0 Totarance cm3/1000 strokes :  $\leftarrow$  10.0 Check tolerance cm3/1000s. : **←** 15.0 LOW IDLE Rated speed rpm : 475 Del. quantity cm3/1000 strokes : 23.5 Tolerance cm3/1000 strokes : + 2.0 Check tolerance cm3/1000s.: +- 4.5 Spreed Tolerance 3.5 cm3/1000 strokes : Check tolerance 5.5 cm3/1000s.

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 27.01.97 Edition Test oil

Combination No. : 0 400 074 883

Injection pump

Pump designation : PES4M600320RS185 EP type number : 0 410 064 006

Governor

Governer design. : RSF375/1900M78 Governer no. : 0 420 021 274

Cust. part No. :

Customer-spec. information Customer : MB-PKW

: 0M601 D23 LA Motor

Power KW : 72.0

#### TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C Toterance °C : + 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde

: 1 688 901 111 assembly

Opening pressure

bar : 148.5 Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 2.05 Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 21.00 Tolerance mm: : +- 1.00

Firing order : 1-3-4-2

Phasing : 0-90-130-270

Start of delivery blocking

\*NW after s.o.d. : 17.00 Tolerance : **←** 0.20

Check

tolerance \*NW : +- 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.80

Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 59.5

Tolerance

cm3/1000 strokes :  $\leftarrow$  0.7

Check tolerance

: +- 1.7 cm3/1000s.

Spreed

Tolerance

cm3/1000 strokes : 3.0

Check tolerance : 3.5 cm3/1000s. SET IDLE CONTROL LEVER POSITION Rated speed rpm : 375 Rack travel in mm: 5.90 Tolerance mm : +- 0.10 C Del. quantity cm3/1000 strokes : 6.5 Tolerance L cm3/1000 strokes :  $\leftarrow$  0.5 Spreed Tolerance cm3/1000 strokes : 1.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR IDLE STAGE R Rack travel in mm: 6.00 Tolerance mm : + 0.10 L FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 900 Ref. pressure ALDA / ADA hPa : 1850 Del. quantity cm3/1000 strokes : 59.5 C Tolerance cm3/1000 strokes :  $\leftarrow$  0.7 Chack tolerance cm3/10000s.: <del>←</del> 1.7 Spreed Tolerance cm3/1000 strokes : 3.0 T Check tolerance cm3/1000s. 3.5 RATED SPEED control lever position degree : 50.0 R Rated speed rpm : 2200 rack travel mm : 8.30 T : **←** 0.20 Tolerance mm R Rated speed rpm : 2600 rack travel mm : 0.50 : **←** 0.50 Tolerance mm

Rated speed rpm	:	900		
CRT mm max.	:	1.95		
LOW IDLE	· · · · · · · · · · · · · · · · · · ·			
control lever position degree tolerance degree	: +-	12.0 2.0		
Setting point w/ou Rated speed rpm rack travel mm	:	mper spring 375 5.90		
SET IDLE AUXILIAN	Y SPR	ING		
Rated speed rpm rack travel mm Tolerance mm	:	500 4.20 0.10		
Load pick-up				
Rated speed rpm rack travel mm	:	200 13.00		
Rated speed rpm	:	900		
CRT mm max.	:	1.95		
rack travel mm Rated speed rom		5.90 375		
TORQUE CONTROL				
Rated speed rpm rack travel mm Tolerance mm	: +	960 13.80 0.05		
Rated speed rpm rack travel mm Tolerance mm	:	1500 13.20 0.10		
Rated speed rpm rack travel mm Tolerance mm	:	1900 12.50 0.10		
Rated speed rpm rack travel mm Tolerance mm	:	900 11.15 0.10		
ADJUSTMENT TEST ADA/ALDA				

		6 a 1	
SETTING	†	Del. quantity cm3/1000 strokes	. /7.0
251 1 1140	†	Tolerance	: 43.0
Poted aread are	900	cm3/1000 strokes	0.7
Doff maccourse			: +- 0.7
ALDA / ADA hPa :	1600	Check tolerance cm3/1000s.	: + 1.7
rack travel mm :	-0 2s		: + 1.7
	+ 0.20	Spreed	
ioterance mm :	<del>+ 0.20</del> <del>†</del>	Tolerance	. 7.0
MEACHDEMENT	†	cm3/1000 strokes	: 3.0
MEASUREMENT	†	Check tolerance	
Potos' aroad are	900	cm3/1090s.	: 3.5
	700 †	Dof management	
Ref. pressure ALDA / ADA hPa :	1100	Ref. pressure	. 1100
ALDA / ADA NPA :	-2.65	ALDA / ADA hPa	
	+ 9.10 ‡	Rated speed rpm	: 900
Tolerance mm :	T 5.10	Del. quantity	. /% 6
0-6	†	cm3/1000 strokes	: 45.0
Ref. pressure	750	Tolerance	0.7
ALDA / ADA hPa :		cm3/1000 strokes	: ← 0.7
rack travel mm :		Check tolerance	4.7
Tolerance mm :	+ 0.20 +	cm3/1000s.	: <del>-</del> 1.7
	†	Spreed	
	†	Tolerance	7.0
PIEL DELTIEDY AMADAGE	-	cm3/1000 strokes	: 3.0
FUEL DELIVERY CHARAC	TERISTICS	Check tolerance	7.5
	†	cm3/1000s.	: 3.5
Ref. pressure	1000		
ALDA / ADA hPa :			
Rated speed rpm :	1500		
Del. quantity	<b>50.0 †</b>	HIGH IDLE	
cm3/1000 strokes :	58.0 +		
Tolerance	t	Ref. pressure	44.55
cm3/1000 strokes :	<b>←</b> 1.0 †	ALDA / ADA hPa	
Check tolerance	· • • • • • • • • • • • • • • • • • • •	Rated speed rpm	
	<b>←</b> 2.0 +	rack travel mm	
Spreed	t	Tolerance mm	: ← 0.20
Tolerance	<u> </u>	Del. quantity	<b>-</b> :
cm3/1000 strakes :	3.C +	cm3/1000 strokes	: 31.0
Check tolerance		Tolerance	
cm3/1000s. :	3.5	cm3/1000 strokes	: +- 2.2
	†	Check tolerance	
Ref. pressure	†	cm3/1000s.	: <b>←</b> 3.2
ALDA / ADA hPa :		Spreed	
Rated speed rpm :	1900	Tolerance	7.0
Spreed	†	cm3/1000 strokes	: 3.0
Del. quantity	55.5	Check tolerance	. 7.5
cm3/1000 strokes :	55.5	cm3/1000s.	: 3.5
Tolerance			
cm3/1000 strokes :	<del>+</del> 1.2 +	OTANTANO SUSA DEL	
Check tolerance		STARTING FUEL DEL	IVERY
	+ 2.2 +		400
Spreed	†	Rated speed rpm	
Tolerance	7.0	rack travel mm	: > 20.10
cm3/1000 strokes :	3.0	Del. quantity	. F/ <b>3</b>
Check tolerance	<b>,</b> , , , , , , , , , , , , , , , , , ,	cm3/1000 strokes	: 54.5
cm3/1000s. :	3.5	Tolerance	
	†	cm3/1000 strokes	; <del></del>
Ref. pressure	1400	Check tolerance	
ALDA / ADA hPa :		cm3/1000s.	: <del></del>
Rated speed rpm :	<b>Υ</b> ΙΙΟ †	Spreed	

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s.

: 8.5

### LOW IDLE

Rated speed rpm : 375

Del. quantity cm3/1000 strokes : 7.8

Check tolerance

cm3/1000s.

: ← 2.3

Spreed Check tolerance 7/1000s. : 1.5

control lever

position degree : > 42.00

control lever

position degree : < 39.50

SETTING PNEUMATIC FAST 1DLE (PLA) (PLA) POSITION

control lever

position degree : 12.0 tolerance degree : + 2.0

Rated speed rpm : 425

Rack travel in mm: 7.50 Tolerance mm

: **←** 0.80

Del. quantity

cm3/1000 strokes : 16.5

Tolerance

cm3/1000 strokes : + 3.5

Check tolerance

cm3/1000s. : + 4.5 Vacuum hPa : 450.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 375 Vacuum hPa : -450.0

G12

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition

: 23.01.97 Test oil : ISO 4113

Combination No. : 0 402 646 625

Injection pump

Pump designation : FE6P12GA52GRS7300

EP type number : 0 412 626 886

Governor

Governer design. : RQV275...1000PA1077K

Governer no. : 0 421 815 358

Cust. part No. : 1280165

Customer-spec. information

Customer : DAF

: WS 242 M Motor

Power KW : 242.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C

Tolerance °C : +- 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity

min. L/h : 140 Tolerance L/h : +- 10.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5 Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : + 1.0

Prestroke mm : + 5.35

: +- 0.05

Cneck

tolerance mm : **←** 0.10

Rack travel in mm : 15.00

Tolerance mm : → 0.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 : ← 0.30 Phasing

Tolerance

Check

tolerance \*NW : +- 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 15.05

Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 228.0

Tolerance cm3/1000 strokes : +- 1.0	+ guide sleeve + travel mm : 3.08 + Tolerance mm : + 0.25
Check tolerance cm3/1000s. : +- 4.0	Rated speed rpm : 460
Spreed	+ guide sleeve + travel mm : 3.92
Tolerance cm3/1000 strokes : 5.0	Tolerance mm : +- 0.25  Rated speed rpm : 1310
Check tolerance cm3/1000s. 9.0	travel mm : 13.50 Tolerance mm : +- 0.50
Rated speed rpm : 275	GUIDE SLEEVE POSITION
Rack travel in mm: 5.30 Tolerance mm: + 0.10 Del. quantity cm3/1000 strokes: 17.0	control lever position degree : - 1 Rated speed rpm : 1140
Tolerance cm3/1000 strokes : +- 3.0 Check tolerance	Rack travel in mm: 14.00 Tolerance mm: + 1.30
cm3/1000s. : +- 6.0 Spreed	FULL LOAD DELIVERY AT FULL LOAD STOP
Tolerance cm3/1000 strokes : 8.0 Check tolerance	Rated speed rpm : 980 Aneroid pressure
cm3/1000s. : 12.0	hPa : - Del. quantity
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	- cm3/1000 strokes : 228.0 - Tolerance - cm3/1000 strokes : +- 1.0
GUIDE SLEEVE TRAVEL	Check tolerance cm3/1909s. : +- 4.0  Spreed
Rated speed rpm : 1045	Tolerance cm3/1000 strokes : 5.0
guide sleeve travel mm : 9.83 Tolerance mm : + 0.15	+ Check tolerance + cm3/1000s. : 9.0
Rated speed rpm : 275 guide sleeve	CONTROL LEVER
travel mm : 2.14 Tolerance mm : +- 0.20	control lever position degree : 119.0
Rated speed rpm : 689 guide sleeve	tolerance degree : +- 4.0
travel mm : 6.43 Tolerance mm : + 0.25	+ RATED SPEED + rack travel mm : 14.00 + Rated speed rpm : 1037
Rated speed rpm : 284 guide sleeve	+ Tolerance 1/min : +- 5 + Check
travel mm : 2.27 Tolerance mm : + 0.25	+ speed 1/min : + 10 + rack travel mm : 4.00
Rated speed rpm : 334	Rated speed rpm : 1165

: <del>←</del> 15
: ← 20
: 0.70 : ← 0.70 : 1250
: 74.0 : + 4.0
: 275 : 5.30 : ← 0.10
: 2.00 : 375 : + 20
: 175
: > 8.50
: 980 : 15.05 : +- 0.05
: 850 : 14.95 : ← 0.10
: 750 : 14.95 : + 0.10
: 600 : 14.60 : ← 0.10
: 500 : 14.40 : ← 0.10

SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 980 : 1500 : 15.05 : + 0.05
Pressure hPa Rated speed rpm rack travel mm Tolerance mm	: 980 : 12.30 : + 0.10
MEASUREMENT	
Rated speed rpm	: 980
Pressure hPa rack travel mm Tolerance mm	: 480 : 14.35 : ← 0.05
Pressure hPa	: 270 : 12.90 : +- 0.10
rack travel mm Tolerance mm	• • • • • • •
Tolerance mm Start interlock	
Tolerance mm  Start interlock  FUEL DELIVERY CHA  Anaroid pressure hPa	RACTERISTICS
Tolerance mm  Start interlock  FUEL DELIVERY CHA  Anaroid pressure hPa Rated speed rpm Del. quantity	
Tolerance mm  Start interlock  FUEL DELIVERY CHA  Anaroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	RACTERISTICS : - : 750
Tolerance mm  Start interlock  FUEL DELIVERY CHA  Ancroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	RACTERISTICS : ~ : 750 : 238.0
Tolerance mm  Start interlock  FUEL DELIVERY CHA  Ancroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	RACTERISTICS : - : 750 : 238.0 : + 2.0
Tolerance mm  Start interlock  FUEL DELIVERY CHA  Anaroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance	: 750 : 238.0 : + 2.0 : + 5.0
Tolerance mm  Start interlock  FUEL DELIVERY CHA  Ancroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000s. Spreed Tolerance cm3/1000s. Aneroid pressure hPa	RACTERISTICS  :
Tolerance mm  Start interlock  FUEL DELIVERY CHA  Anaroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000s. Anaroid pressure	RACTERISTICS  : 750 : 238.0 : + 2.0 : + 5.0 : £.0
Tolerance mm  Start interlock  FUEL DELIVERY CHA  Anaroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Tolerance cm3/1000 strokes Tolerance cm3/1000 strokes Tolerance cm3/1000 strokes Tolerance cm3/1000 strokes	RACTERISTICS  : 750 : 238.0 : ← 2.0 : ← 5.0 : £.0 : 12.0 : 600
Tolerance mm  Start interlock  FUEL DELIVERY CHA  Anaroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1090 strokes Check tolerance cm3/1000s. Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance	RACTERISTICS  : 750 : 238.0 : + 2.0 : + 5.0 : £.0 : 12.0  : 600 : 157.0

COMPENSATOR TEST

# LOW IDLE

Rated speed rpm : 275 Del. quantity cm3/1000 strokes : 17.0 Tolerance cm3/1000 strokes : +-3.0 Check tolerance cm3/1000s. 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. 12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 24.01.97 : ISO 4113

Combination No. : 0 402 646 653

injection pump

Pump designation : PE6P120A320RS7360

EP type number : 0 412 626 936

Governor

Governor design. : R9275/1150PA1193

Governer no. : 0 421 801 752

Cust. part No. : 1294723/2

Customer-spec. information

Customer : DAF

: GS 200 M

Motor Power KW

: 200.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C

Tolerance °C

Overflow valve : 1 417 413 000

Inlet press. bar :

1.5

Tolerance bar  $: \leftarrow 0.1$ 

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

bar

208.5

Tolerance bar

1.5

Test lines

: 1 680 750 089

Outside diameter : 8.0

**G17** 

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm 5.25 Tolerance mm : +- 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 11.50

Tolerance mm : ← 5.00

: 1-5-3-6-2-Firing order

: 4

: 0-60-120-180-240 Phasing

Tolerance : **←** 0.30

Check

tolerance \*NW : +- 0.50

Start of delivery mark

Tolerance : **←** 0.10

Check

tolerance \*NW :  $\leftarrow$  0.70

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.70 Tolerance mm : **←** 0.05

Del. quantity

cm3/1000 strokes: 178.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance cm3/1000s. : +- 4.0	Rated speed rom : 1363
Spreed	guide steeve travel mm : 11.50
Tolerance 5.0	Tolerance mm : + 0.50
Check tolerance	GUIDE SLEEVE POSITION
cm3/1000s. : 9.0	control lever position degree : - 1
Rated speed rpm : 275	Rated speed rpm : 550
Rack travel in mm: 5.50	Rack travel in mm : 15.80 Tolerance mm : + 0.60
Tolerance mm : + 0.10	. Total arice iiiii . Total
Del. quantity	
cm3/1000 strokes : 38.0 Tolerance	FULL LOAD DELIVERY AT FULL LOAD STOP
cm3/1000 strokes : + 3.0 Check tolerance	Rated speed rpm : 1000
check toterance : +- 6.0	Aneroid pressure hPa : 1000
Spreed	Del. quantity
Tolerance	cm3/1000 strokes : 178.0
cm3/1000 strokes : 8.0	Tolerance 4.0
Check tolerance + 12.0 + 12.0	cm3/1000 strokes : +- 1.0 Check tolerance
	cm3/1000s. : +- 4.0 Spreed
(B) SETTING OF INJECTION PUMP	Tolerance
WITH GOVERNOR	cm3/1000 strokes : 5.0
	Check tolerance cm3/1000s. : 9.0
GUIDE SLEEVE TRAVEL	
Rated speed rpm : 1205	
guide sleeve	CONTROL LEVER
travel mm : 6.49 Tolerance mm : + 0.10	control lever
Total alice min	position degree : 100.0
Rated speed rpm : 275 guide sleeve	tolerance degree : +- 4.0
travel mm : 1.94	RATED SPEED
Tolerance mm : + 0.10	rack travel mm : 10.70
Rated speed rpm : 1150 guide sleeve	Rated speed rpm : 1202 Tolerance 1/min : + 8
travel mm : 6.00	rack travel mm : 4.00
Tolerance mm : + 0.10	Rated speed rpm : 1280
Rated speed rpm : 353	Tolerance 1/min : + 15
guide steeve	rack travel mm : 0.70
travel mm : 4.33	Tolerance mm : +- 0.70
Tolerance mm : + 0.10	Rated speed rpm : 1450
Rated speed rpm : 440 guide sleeve	
travel mm : 6.00	
Tolerance mm : + 0.10 +	LOW IDLE

control lever

position degree : 74.0 tolerance degree : +- 4.0

Testing:

Rated speed rpm : 275
rack travel mm : 5.50
Tolerance mm : ← 0.10

rack travel mm : 2.00
Rated speed rpm : 340
Tolerance 1/min : +- 20

Rated speed rpm : 175

CRT mm min. :> 7.00

TORQUE CONTROL

Rated speed rpm : 1000 rack travel mm : 11.70 Tolerance mm : + 0.05

Rated speed rpm : 1150 rack travel mm : 17.70 Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1000
rack travel mm : 11.70
Tolerance mm : +- 0.05

Pressure hPa : Rated speed rpm : 600
rack travel mm : 8.40
Tolerance mm : + 0.10

MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 390
rack travel mm : 10.95
Tolerance mm : + 0.05

Pressure hPa : 210 rack travel mm : 9.50 Tolerance mm : + 0.10

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : Rated speed rpm : 600
Del. quantity

cm3/1000 strokes : 116.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : +- 4.0

LOW IDLE

Rated speed rpm : 275

Del. quantity

cm3/1000 strokes : 38.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  3.0

Check tolerance

cm3/1000s. : +- 6.0

Spreed Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 27.01.97 Edition Test oil : 150 4113

Combination No. : 0 402 648 783

Injection pump

Pump designation : PE8P12OA320LS7906 EP type number : 0 412 628 921

Governor

Governer design. : RQ750PA1326 Governer no. : 0 421 801 815

Cust. part No. : 04222 3938 KY

Customer-spec, information

Customer : KHD : BF8M1015/C Mutor

Power KW : 318.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C 40 : - 2.0 Tolerance °C

Overflow valve : 2 417 413 033

Inlet press. bar : Tolerance bar : + 0.1

Overflow quantity min. L/h : 200 Tolerance L/h : + 20.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5 Test Lines : 1 689 750 975

Outside diameter : 8.0

x inside diameter :

x length mm : 1000

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 3.65
Tolerance mm : + 0.05

Check

tolerance mm : ← 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 8-7-2-6-5 : - 3- 1

Phasing : 0-45-90-135-180

: -270-315 : ~ 0.30 Tolerance

Check

: +- 0.50 tolerance \*NW

Start of delivery blocking

\*NW after s.o.d. : 315.00

Tolerance : +- 0.50

Check

tolerance \*NW : + 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 700

	40.40	+ guide sleeve	
Rack travel in mm		+ travel mm	: 12.00
Tolerance mm	: +- 0.05	+ Tolerance mm	: <del>+-</del> 0.25
		+	
Del. quantity		+ Rated speed rpm	: 930
cm3/1000 strokes	: 365.0	<pre>+ guide sleeve</pre>	
	*	+ travel min	: 13.50
Tolerance		+ Tolerance mm	: ← <b>0</b> .50
cm3/1000 strokes	: <del></del> 1.0	+	
Check tolerance		→ FULL LOAD DELIVER	RY AT FULL LOAD STOP
cm3/1000s.	: +- 4.0	+	
		+ Rated speed rpm	: 70ú
Spreed		+ Aneroid pressure	
•		+ hPa	: -
Tolerance		+ Del. quantity	•
cm3/1000 strokes	: 5.0	+ cm3/1000 strokes	: 365.0
	· <del>-</del>	+ Tolerance	
Check tolerance		+ cm3/1000 strokes	: +- 1.0
cm3/1000s.	: 9.0	+ Check tolerance	•
		+ cm3/1000s.	: +- 4.0
		Spreed	710
		+ Tolerence	
Rated speed rpm	: 300	+ cm3/1000 strokes	: 5.0
Del. quantity		+ Check tolerance	• 5.0
cm3/1000 strokes	: 20.0	+ cm3/1000s.	: 9.0
Tolerance	. 20.0	1	. 7.0
cm3/1000 strokes	: +- 3.0	1	
Check tolerance	3.0	I	
cm3/1000s.	: +- 6.0	CONTROL LEVER	
Spreed		I CONTROL ELVER	
Tolerance		- control lever	
cm3/1000 strokes	: 8.0	position degree	. 41/. 0
Check tolerance	. 0.0	tolerance degree	
cm3/1000s.	: 12.0	T coterante degree	: 4.0
CIIS/ 10003.	. 12.0	T	
		ASSEMBLY GOVERNOR	CETTING
(B) SETTING OF IN	LIECTION DIMP	T ASSEMBLI GOVERNO	COELLING
WITH GOVERNOR	MECLION FORM	Rated speed rpm	. 750
WITH GOVERNOR		rack travel mm	
		T rack travet min	: 17.60
GUIDE SLEEVE TRAV	/E)	I Pated speed and	. 700
GOIDE STEEKE IKWA	EL	+ Rated speed rpm + Tolerance 1/min	
Rated speed rpm	: 715	+ rack travel mm	
guide Steeve	. (1)	I lack chavet mil	. 3.30
travel mm	: 4.23	T rack travel mm	: 0.50
Tolerance mm	: 4.25 : + 0.15	Tolerance mm	: 0.50 : +- 0.50
TO CET AT ICE IMP	, +- 0.15		
Deted spend and	: 610	Rated speed rpm	: 900
Rated speed rpm	. 610	I	
guide sleeve travel mm	: 0.72	I Poted speed and	. 751
		+ Rated speed rpm	
Tolerance mm	: <b>←</b> 0.25	+ rack travel mm	: 11.60
Dated annual annual	. 000	T Control once of the	. 704
Rated speed rpm	: 900	+ Rated speed rpm	
guide sleeve	. 4/ 80	+ Tolerance 1/min	
travel mm	: 14.89	+ rack travel mm	: 5.50
Tolerance mm	: <b>←</b> 0.25	<b>†</b>	. 0.50
<b>6</b> -4	8/3	+ rack travel mm	: 0.50
Rated speed rpm	: 862	† Tolerance mm	: ← 0.50
		+	

Rated speed rpm	: 754
rack travel mm	: 11.60
Rated speed rpm Tolerance 1/min rack travel mm	: 784 : + 4
rack travel mm Tolerance mm Rated speed rpm	
Rated speed rpm	: 755
rack travel mm	: 11.60
Rated speed rpm	: 785
Tolerance 1/min	: ← 4
rack travel mm rack travel mm Tolerance mm	: 5.50 : 0.50 : ← 0.50

rack travel mm	:	5.50
rack travel mm Tolerance mm	<b>;</b> +	0.50 0.50
TORQUE CONTROL		
		700 12.60 0.05
Start interlock		
Rated speed rpm Rated speed rpm	: >	100 560
G22		

Check speed 1/min Check	: > 80	
speed 1/min	: < 580	
STARTING FUEL DEL	IVERY	
Rated speed rpm rack travel mm Tolerance mm	: 100 : 20.25 : + 0.75	
Del. quantity cm3/1000 strokes Tolerance	: 200.0	
cm3/1000 strokes Check tolerance	: + 15.0	
cm3/1000s.	: + 19.0	
LOW IDLE		
Rated speed rpm Del. quantity	: 300	
om3/1000 strokes	: 20.0	
Tolerance cm3/1000 strokes	: + 3.0	
Check tolerance cm3/1000s.	: + 6.0	
Spreed Tolerance		
cm3/1000 strokes Check tolerance	: 8.0	
cm3/1000s.	: 12.0	

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 29.01.97 : ISO 4113

Combination No. : 0 402 648 793

Injection pump

Pump designation : PE8P120A320LS7873 EP type number : 0 412 628 880

Governor

Governer design. : RQ300/1050PA1268 Governer no. : 0 421 801 802

Cust. part No. : 04223118KY0165-17

Customer-spec. information

Customer : KHD Motor

: BF8M1015/C : 400.0

Power KW

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : + 2.0 Tolerance \*C

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Overflow quantity

min. L/h : 160 Tolerance L/h : ← 20.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

208.5 bar Tolerance bar : + 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : +-4.05 : +- 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 10.50 Tolerance mm :  $\leftarrow$  1.50

Firing order : 1-8-7-2-6

: - 4- 3

Phasing : 0-45-90-135-180

: -270-315 : +- 0.30 Tolerance

Check

tolerance \*NW : **←** 0.50

Start of delivery mark

Tolerance : **←** 0.50

Check

tolerance \*NW : + - 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm: 14.60 Tolerance mm :  $\leftarrow$  0.05

	+ guide sleeve
Del. quantity	+ travel mm : 4.21
cm3/1000 strokes : 340.0	+ Tolerance mm : +- 0.10
51137 1303 341 0KC3 . 340.0	
Tolerance	Rated speed rpm : 580
cm3/1000 strokes : +- 1.0	
cms/1000 strokes : +- 1.0	+ guide sleeve
	travel mm : 6.00
Check tolerance	+ Tolerance mm : +- 0.10
$cm3/1000s.$ : $\leftarrow$ 4.0	+
	+ Rated speed rpm : 1290
Spreed	+ guide sleeve
	+ travel mm : 11.50
Tolerance	+ Tolerance mm : + 0.50
cm3/1000 strokes : 5.0	
Check tolerance	F GUIDE SLEEVE POSITION
cm3/1000s. : 9.0	T OOTHE SEEEAE FOSTITOIA
CIID7 10003. , 9.0	T
	T combined days as
	+ control lever
Ontrol annual annual 300	position degree : 90
Rated speed rpm : 300	+ Rated speed rpm : 700
	<b>†</b>
Rack travel in mm: 5.00	+ Rack travel in mm : 10.20
Tolerance mm : + 0.10	+ Tolerance mm : +- 0.80
Del. quantity	+
cm3/1000 strokes : 20.0	
Tolerance	+ FULL LOAD DELIVERY AT FULL LOAD STOP
cm3/1000 strokes : +- 3.0	
Check tolerance	+ Rated speed rpm : 1050
cm3/100Gs. : + 6.0	+ Aneroid pressure
Spreed	hPa : 1600
Tolerance	+ Del. quantity
	+ cm3/1000 strokes : 340.0
Check tolerance	† Tolerance
cm3/1000s. : 12.0	+ cm3/1000 strokes : + 1.0
	+ Check tolerance
42.	+  cm3/1000s. : +- 4.0
(B) SETTING OF INJECTION PUMP	+ Spreed
WITH GOVERNOR	+ Folerance
	+ cm3/1000 strokes : 5.0
	+ Check tolerance
GUIDE SLEEVE TRAVEL	+ cm3/1000s. : 9.0
	+
Rated speed rpm : 1106	+
guide sleeve	1
travel mm : 6.53	+ CONTROL LEVER
Tolerance mm : + 0.15	1
1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	- control lever
Rated speed rpm : 300	+ position degree : 99.0
guide sleeve	tolerance degree : + 4.0
travel mm : 1.66	T DATED ODES
Tolerance mm : + 0.20	+ RATED SPEED
	+ rack travel mm : 13.60
Rated speed rpm : 1050	+ Rated speed rpm : 1100
guide sleeve	+ Tolerance 1/min : +- 5
travel mm : 6.00	+
Tolerance mm : ← 0.10	rack travel mm : 4.00
	Rated speed rpm : 1210
Rated speed rpm : 458	+ Tolerance 1/min : + 15
	The second secon

rack travel mm Tolerance mm Rated speed rpm	: 0.50 : ← 0.50 : 1300
LOW IDLE	
control lever position degree tolerance degree	: 72.0 : + 4.0
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 300 : 5.00 : ← 0.10
rack travel mm Rated speed rpm Tolerance 1/min	: 2.00 : 415 : + 20
Rated speed rpm	: 200
CRT mm min.	: > 6.20
TORQUE CONTROL	
Rated speed rpm rack travel mm Tolerance mm	: 1050 : 14.60 : + 0.05
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 400 : 1600 : 14.60 : + 0.05
Pressure hPa Rated speed rpm rack travel mm Tolerance mm	: - : 400 : 9.40 : + 0.20
MEASUREMENT	
Rated speed rpm	: 400
Pressure hPa rack travel mm Tolerance mm	: 570 : 11.10 : + 0.20

Pressure hPa : 1100
rack travel mm : 13.60
Tolerance mm : + 0.05

Start interlock

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hFa : -Rated speed rpm : 400
Del. quantity
cm3/1000 strokes : 250.0
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000s. : +- 4.0

## STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 9.40 Tolerance mm : + 0.75 Del. quantity cm3/1000 strokes : 145.0 Tolerance cm3/1000 strokes : + 20.0 Check tolerance cm3/1000s. : + 24.0

## LOW IDLE

Rated speed rpm : 300
Del. quantity
cm3/1000 strokes : 20.0
Tolerance
cm3/1000 strokes : + 3.0
Check tolerance
cm3/1000s. : + 6.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000 strokes : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 24.01.97 : ISO 4113 Edition Test oil

Combination No. : 0 402 676 838

Injection pump

Pump designation : PE6P120A320LS7909 EP type number : 0 412 626 963

Governor

Governer design. : RSV550...800P0A671 Governer no. : 0 421 833 589

Cust. part No. : 0270743402

Customer-spec. information

Customer : M8-NFZ : OM441 LA eoromot Motor

Power KW : 218.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

τemp. °C Tolerance °C temp. °C : 40 : ← 2.0 40

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5 Inlet press. par : 1.5 Tolerance bar : + 0.1

Overflow quantity

min. l/h : 105 Tolerance l/h : + 15.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

: 208.5 bar Tolerance bar : +- 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter: 3.0 x length run : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 20.50 Tolerance mm :  $\leftarrow$  0.50

Firing order : 6-3-5-2-4-

: 1

rnasing : 0-60-120-180-240
Tolerance : + 0 20

Check

tolerance \*NW : **←** 0.50

Start of delivery mark

Tolerance :  $\leftarrow$  0.10

Check

tolerance \*NW : + 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 780

Rack travel in mm: 14.50

Tolerance mm : +- 0.05	- Rated speed rpm : 780 - Aneroid pressure
Del. quantity cm3/1000 strokes : 229.0	hPa : 1200 Del. quantity
Tolerance	cm3/1000 strokes : 229.0
cm3/1000 strokes : +- 1.0	cm3/1000 strokes : + 1.0 Check tolerance
Check tolerance cm3/1000s. : + 4.0	cm3/1000s. : + 4.0 Spreed Tolerance
Spreed	r cm3/1000 strokes : 6.0 Check tolerance
Tolerance cm3/1000 strokes : 6.0	cm3/1000s. : 9.0
Check tolerance cm3/1000s. : 9.0	CONTROL LEVER
	control lever
Rated speed rpm : 550	position degree : 84.0
Rack travel in mm: 4.30 - Tolerance mm: : + 0.10	ASSEMBLY GOVERNOR SETTING
Del. quantity	Rated speed rpm : 830
cm3/1000 strokes : 19.0 - Tolerance	rack travel mm : 13.50
cm3/1000 strokes : + 3.0	Rated speed rpm : 890
Check tolerance	Tolerance 1/min : +- 4
cm3/1000s. : + 6.0 - Spreed	rack travel mm : 4.00
Tolerance	rack travel mm : 0.85
cm3/100G strokes : 8.0 - Check tolerance -	Tolerance mm : + 0.55 Rated speed rpm : 1300
cm3/1000s. : 12.0	Rated speed rpm : 1300
	Rated speed rpm : 831
(E) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 13.50
	Rated speed rpm : 891
	Tolerance 1/min : +- 4 rack travel mm : 4.00
GUIDE SLEEVE POSITION	+
•	rack travel mm : 0.85
control lever	Tolerance mm : + 0.55
position degree : - 3 Rated speed rpm : 800	Rated speed rpm : 1300
natea speca i piii . Ooo	Rated speed rpm : 832
Rack travel in mm: 0.50 - Tolerance mm: + 0.20 -	Rated speed rpm : 832 rack travel mm : 13.50
	Rated speed rpm : 892
governor spring - pre-tension -	Tolerance 1/min : +- 4 rack travel mm : 4.00
click setting x : 2.50	+
	rack travel mm : 0.85 Tolerance mm : + 0.55
CHILL LOAD DELTUEDY AT CHILL LOAD CTOD	Tolerance mm : \( 0.55
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 1300

	05:7	†
Rated speed rpm rack travel mm	: 833 : 13.50	TORQUE CONTROL
Rated speed rpm Tolerance 1/min rack travel mm	: +- 4	Rated speed rpm : 780 rack travel mm : 14.50 Tolerance mm : + 0.05
rack travel mm Tolerance mm Rated speed rpm	: <b>←</b> 0.55	Rated speed rpm : 700 rack travel mm : 14.50 Tolerance mm : + 0.10
Rated speed rpm rack travel mm		ANEROID/ALTITUDE COMPENSATOR TEST
Rated speed rpm Tolerance 1/min rack travel mm	: +- 4	SETTING
rack travel mm Tolerance mm	: <b>←</b> 0.55	Pressure hPa : - Rated speed rpm : 500
Rated speed rpm		MEASUREMENT Pressure hPa : 400
Rated speed rpm rack travel mm	: 13.50	rack travel mm : 1.20 Tolerance mm : + 0.05
Rated speed rpm Tolerance 1/min rack travel mm	: <del>-</del> 4	Pressure hPa : 700 rack travel mm : 3.60 Tolerance mm : + 0.20
rack travel mm Tolerance mm Rated speed rpm	: <b>←</b> 0.55	Start interlock
LOW IDLE		FUEL DELIVERY CHARACTERISTICS
control lever position degree	: 74.0	Aneroid pressure hPa : 1200 Rated speed rpm : 700 Del. quantity cm3/1000 strokes : 234.0
Testing: Rated speed rpm	: 550	Tolerance cm3/1000 strokes : + 3.0 Check tolerance
rack travel mm Tolerance mm		cm3/1000s. : + 6.0 Spreed Tolerance
rack travel mm Rated speed rpm Tolerance 1/min	: 575	cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0
Rated speed rpm		Aneroid pressure hPa :
CRT mm min.  SET IDLE AUXILIA	; > 19.50	Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 138.0
rack travel mm		Tolerance + cm3/1000 strokes : +- 1.0

Check tolerance cm3/1000s. : +- 4.0 Spreed Tolerance cm3/1000 strokes : 8.0

Check tolerance cm3/1000s. 12.0

## STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity

cm3/1000 strokes : 250.0

Tolerance

cm3/1000 strokes : + 15.0

Check tolerance

cm3/1000s. : +- 19.0

## LOW IDLE

Rated speed rpm : 550

Del. quantity

cm3/1000 strokes : 19.0

Tolerance

cm3/1000 strokes : +-3.0

Check tolerance

cm3/1000s. : + 6.0

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. 12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 04.10.96 : ISO 4113

Combination No. : 0 402 696 033

Injection pump

Pump designation : PE6H12O/32OLS4-2 EP type number : 0 412 626 903

Governor

Governer design. : RE36

Governer no.

: 0 421 890 359

Cust. part No. : 0250745502

Customer-spec. information Customer : MB-NFZ

Motor

: OM 441 LA

## TEST BENCH REQUIREMENTS

Inlet line : 3.2 ELAB

Test oil inlet

temp. °C

40

Tolerance °C : -- 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0 Tolerance bar : + 0.1

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

bar

: 208.5

Tolerance bar

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 600

REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery

under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm 7.00 : +- 0.05 Tolerance mm

Check

tolerance mm : **←** 0.10

Rack travel in mm : 10.50 Tolerance mm :  $\leftarrow$  0.50

Firing order : 6-3-5-2-4-

: 1

: 0-60-120-180-240 Phasing

Tolerance : **←** 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Tolerance : **←** 0.50

Check

tolerance  $^{\circ}NW$  : +- 0.75

Barrel no. : 6

(B) POSITIONER TESTING Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 V

TESTING & SETTING POSITION	RACK TRAVEL SENSOR
Engine speed min-	1: 0
Setting point (P, R and H pump)	
Uact V CRT mm Tolerance mm	: 3.100 : 13.00 : +/- 0.05
Check tolerance mm	: +/- 0.10
Check value (F, R and H pump)	
Uact V CRT mm Tolerance mm	: 1.700 : 6.15 : +/- 0.25
Check tolerance mm	: +/- 0.30
Setting point (M pump)	
Uact V CRT mm Tolerance mm	: 3.100 : 12.50 : +/- 0.05
Check tolerance mm	: +/- 0.10
Check value (M pump)	
Uact V CRT mm Tolerance mm	: 1.700 : 5.50 : +/- 0.25
Check tolerance mm	: +/- 0.30
Stop position	
Uact V deener	: Value with rgised adjusting magne and control rod in stop position.
CRT mm Tolerance mm	: 0.75 : +/- 0.25
Check tolerance mm	: +/- 0.35

Test with control rod in stop position Engine speed min-1: 60 Amplitude V : 1.4 Tolerance V : 4/- 0.6 Check tolerance V : +/- 1.20 Engine speed min-1: 600 Difference Amplitude to Amplitude V : max.1.4 (C) INJECTION PUMP WITH POSITIONER TEST POINT V1 Rated speed rpm : 750 Uact V 3.000 Prestroke solenoid Stroke mm 7.00 Del. quantity cm3/1000 strokes : 375.0 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +-4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s.9.0 FUEL DELIVERY CHARACTERISTICS Rated speed rpm : 1050 Uact V 3.000 Prestroke solenoid 7.00 Stroke mm Del. quantity cm3/1000 strokes : 339.0 Tolerance cm3/1000 strokes : +- 3.0Check tolerance cm3/1000s. : +- 6.0 Rated speed rpm : 550 Uact V 2.800 Prestroke solenoid Stroke mm 8.70 Del. quentity cm3/1000 strokes : 367.0

Tolerance

cm3/1000s.

Check tolerance

cm3/1000 strokes : +-

3.0

: +- 6.0

(All P and R pumps not

H and M pumps)

# TEST POINT L1

Rated speed rpm	:	300
Uact V	:	1.500
Tolerance Volt	•	+- 0.050
Check tolerance		
Volt	:	<b>←</b> 0.060
Prestroke solenoi	d	
Stroke mm	:	8.00
Del. quantity		
cm3/1000 strokes	:	25.0
Tolerance		
cm3/1000 strokes	:	<b>+−</b> 3.0
Spreed		
Tolerance		
cm3/1000 strokes		6.0
Check tolerance		
cm3/1000s.	:	9.0

# STARTING FUEL DELIVERY

Rated speed rpm	:	100
Uact V	:	1.900
Prestroke solenoi	d	
Stroke mm	:	10.00
Del. quantity		
cm3/1000 strokes	:	106.0
Tolerance		
cm3/1000 strokes	: +	- 10.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 29.01.97 : ISO 4113 Test oil

Combination No. : 0 402 736 889AA

Injection pump

Pump designation : PES6P12CA12CRS7390

EP type number :

Governor

Governer design. : RQV350...1100PA1244K

Governer no. :

Cust. part No. : 3282739

Customer-spec. information Customer : CUMMINS Motor : 6CTAA Power KW : 179.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C Tolerance °C

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5

Overflow quantity

min. l/h : 90 Tolerance l/h : +- 10.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : +- 1.5 Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0 600 x length mm :

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Tolerance bar : + 26.0

Prestroke mm 3.30 : + 0.05 Tolerance mm

Check

: + 0.10 tolerance mm

Rack travel in mm : 20.50 Tolerance mm : + 0.50

Firing order : 1-5- 3- 6- 2-

: 0-60-120-130-240 Phasing

Tolerance : **←** 0.30

Check

tolerance \*NW : **←** 0.50

Start of delivery blocking

\*NW after s.o.d. : 7.70 Tolerance : **←** 0.10

Check

tolerance \*NW : **←** 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm: 13.70

Tolerance mm : + 0.05	+ Check tolerance
Del. quantity cm3/1000 strokes : 173.0	+ cm3/1000s. : + 4.0 + Spreed + Tolerance
	+ cm3/1000 strokes : 5.0
Tolerance cm3/1000 strokes : +- 1.0	Check tolerance cm3/1000s. : 9.0
Check tolerance	Ī
cm3/1000s. : + 4.0	+ RATED SPEED
Windowski für billinde sieren weben der der eine eine eine eine eine eine eine ei	rack travel mm : 12.70
Spreed	+ Rated speed rpm : 1145 + Tolerance 1/min : +- 5
Tolerance	Toterance Dillin : +- 3
cm3/1000 strokes : 5.0	+ Check
The Approximated Proposition and Approximate	+ speed 1/min : +- 20
Check tolerance	†
cm3/1000s. : 9.0	+ rack travel mm : 0.50 + Tolerance mm : +- 0.50
	Rated speed rpm : 1350
	1000
Rated speed rpm : 350	+
Rack travel in mm : 4.60	†
Tolerance mm : + 0.10	LOW IDLE
Del. quantity	+
rm3/1000 strokes : 18.0	+ Testing:
Toterance	†
cm3/1000 strokes : + 3.0 Check tolerance	+ Rated speed rpm : 350 + rack travel mm : 4.60
cm3/1000s. : +- 5.0	+ Tolerance mm : + 0.10
Spreed	+
Tolerance	+ Rated speed rpm : 350
cm3/1000 strokes : 7.0 Check tolerance	†
cm3/1000s. : 11.0	TORQUE CONTROL
	+
	Reted speed rpm : 1100
(B) SETTING OF INJECTION PUMP	rack travel mm : 13.70
WITH GOVERNOR	+ Tolerance mm : ← 0.05
	Rated speed rpm : 700
	rack travel mm : 13.85 Tolerance mm : +- 0.10
GUIDE SLEEVE POSITION	† Tolerance mm : +- 0.10
	Rated speed rpm : 500
control lever	rack travel mm : 12.95
position degree : - 1	+ Tolerance mm : +- 0.15
	†
FULL LOAD DELIVERY AT FULL LOAD STOP	+ ANEROID/ALTITUDE
I OFF FOUN METAEVI. WI LOFF FOUN STOL	+ COMPENSATOR TEST
Rated speed rpm : 1100	+
Aneroid pressure	†
hPa : 1500 Del. quantity	† SETTING
cm3/1000 strokes : 173.0	Rated speed rpm : 700
Tolerance	+ Pressure hPa : 1500
cm3/1000 strokes : + 1.0	† rack travel mm : 13.20
	+   Tolerance mm   : ← 0.10

Pressure hPa Rated speed rpm rack travel mm Tolerance mm	: +-	700 10.10 0.20
MEASUREMENT		
Rated speed rpm	:	700
Pressure hPa rack travel mm Tolerance mm	: +	400 11.10 0.20
Pressure hPa rack travel mm Tolerance mm	: +-	600 12.60 0.05
Start interlock		
Rated speed rom Rated speed rom	; >	290 290
Check speed 1/min Check	; >	80
speed 1/min	; <	300
FUEL DELIVERY CHA	RACTE	RISTICS

FUEL	DEL TVERY	CHARACTERISTICS	:
1 0		CHARACIENTOITE	

Aneroid pressure hPa Rated speed rpm	*	1500 700
Del. quantity cm3/1000 strokes	:	171.0
Tolerance cm3/1000 strckes Check tolerance	: +-	3.0
cm3/1000S. Spreed	: +	6.0
Tolerance cm3/1000 strokes	•	8.0
Check tolerance cm3/1000s.	•	12.0
Aneroid pressure	•	12.0
hPa	:	-
Rated speed rpm	:	500
Del. quantity		
cm3/1000 strokes	:	104.5
Tolerance cm3/1000 strokes Check tolerance	: +-	2.0
cm3/1000s.	: +-	4.0

STAR	ring	FUEL	DEL	<b>IVERY</b>

Rated speed rpm	:	100
rack travel mm	:	20.50
Tolerance mm	: +-	- 0.50
Del. quantity		
cm3/1000 strokes	:	190.0
Tolerance		
cm3/1000 strokes	: +-	- 20.0
Check tolerance		
cm3/1000s.	: +-	- 24.0

LOW IDLE	
Rated speed rpm Del. quantity	: 350
cm3/1000 strokes	: 18.0
cm3/1000 strokes Check tolerance	: <b>←</b> 3.0
cm3/1000s.	5.0
Spreed Tolerance	
cm3/1000 strokes Check tolerance	: 7.0
cm3/1000s.	: 11.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 29.01.97 : ISO 4113

Combination No. : 0 402 746 908

Injection pump

Pump designation: : PES6P120A320R37232

EP type number : 0 412 726 846

Governor

Governer design. : RQV275...1000PA1001

Governer no. : 0 421 813 931

Cust. part No. : CCEP 5111A

Customer-spec. information:

Customer : RENAULT V.I.

Motor

: MIDR 062045 E/3

Power KW

: 249.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C

Tolerance °C

: +- 2.0

Cverflow valve : 2 417 413 071

Inlet press. bar : 2.5

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

: 208.5

Tolerance bar : +- 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter :

x length mm :

3.0 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : + 1.0

Prestroke mm: : 4.7℃ Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 19.50

Tolerance mm

: **←** 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

Tolerance

: **←** 0.30

Check

tolerance \*NW

: +- 0.50

Start of delivery mark

Tolerance :  $\leftarrow$  0.50

Check

tolerance  $^{\circ}NW$  : +- 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 13.75

Tolerance mm : +- 0.05

	+ guide sleeve
BASIC SETTING	+ travel mm : 6.60 + Tolerance mm : + 0.20
	+
Rated speed rpm : 600	+ Rated speed rpm : 500 + guide sleeve
Del. quantity	travel mm : 3.90
cm3/1000 strokes : 265.0	Tolerance mm : + 0.30
Tolerance	Rated speed rpm : 1400
cm3/1000 strokes : $\leftarrow$ 1.0	guide sleeve
Check tolerance	travel mm : 11.50 Tolerance mm : + 0.50
cm3/1000s. : + 4.0	Total rate min . To 0.30
Spreed	GUIDE SLEEVE POSITION
	+
Tolerance cm3/1000 strokes : 5.0	t control lever
CIID/ 1000 Strokes . J.U	position degree : - 1
Check tolerance	+ Rated speed rpm : 1165
cm3/1000s. : 9.0	†
	Rack travel in mm: 13.60 Tolerance mm: + 1.30
	Total arice min . += 1.30
Rated speed rpm : 275	
Rack travel in mm : -8.20	FULL LOAD DELIVERY AT FULL LOAD STOP
Tolerance mm : + 0.10	Rated speed rpm : 600
Del. quantity	+ Aneroid pressure
cm3/1000 strokes : 31.0	+ hPa : 1000
Tolerance	+ Del. quantity
cm3/1000 strokes : → 2.0 Check tolerance	+ cm3/1000 strokes : 265.0
cm3/1000S. : +- 5.0	+ Tolerance + cm3/1000 strokes : ← 1.0
Spreed	Check tolerance
Tolerance	+ cm3/1000s. : $+$ 4.0
cm3/1000 strokes : 8.0	- Spreed
Check tolerance : 12.0	Tolerance + cm3/1000 strokes : 5.0
Cm5/10003. : 12.0	Check tolerance
	+ cm3/1000s. : 9.0
(B) SETTING OF INJECTION PUMP	+
WITH GOVERNOR	İ
<del></del>	+ CONTROL LEVER
GUIDE SLEEVE TRAVEL	†
Rated speed rpm : 1070	control lever position degree : 302.0
auda elaqua	tolerance degree : +- 4.0
travel mm : 8.30 Tolerance mm : +- 0.10	+
Tolerance mm : +- 0.10	+ RATED SPEED
Batad anned non . 275	+ rack travel mm : -1.00
Rated speed rpm : 275 guide sleeve	+ Rated speed rpm : 1080 + Tolerance 1/min : + 5
travel mm : 1.30	- Stel dilice 17 milli
Tolerance mm : + 0.20	+ rack travel mm : -9.70
252	rack travel mm : -9.70 Rated speed rpm : 1225
Rated speed rpm : 850	Tolerance 1/min : + 15

rack travel mm Tolerance mm Rated speed rpm	: <del>+</del> 0.55
LOW IDLE	
control lever position degree tolerance degree	: 247.0 : + 4.0
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 275 : -8.20 : + 0.10
Rated speed rpm	: 200
CRT mm max.	: < -6.70
Rated speed rpm	: 370
TORQUE CONTROL	
Rated speed rpm	: 600
Rated speed rom Tolerance mm	: 1000 : ← 0.10
Rated speed rpm rack travel mm	: 500 : -5.50
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa	: 500 : 1000
Pressure hPa Rated speed rpm rack travel mm Tolerance mm	: - : 500 : -4.20 : +- 0.30
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa rack travel mm Tolerance mm	: 200 : −3.50 : ← 0.15

Pressure hPa rack travel mm Tolerance mm	: 520 : -0.85 : ← 0.05
Stant interlock	
Rated speed rpm Rated speed rpm	: > 100 : < 225
Check speed 1/min	: > 80
Check speed 1/min	: < 245
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure	4000
hPa Rated speed rpm Del. quantity	: 1000 : 1000
cm3/1000 strokes Tolerance	: 244.0
cm3/1000 strokes Check tolerance	: +- 3.0
cm3/1000s.	: +- 6.0
Aneroid pressure hPa Rated speed rpm	: 1000 : 500
Del. quantity cm3/1000 strokes	: 91.0
Tolerance cm3/1000 strokes	: +- 5.0
Check tolerance cm3/1000S. Spreed	: + 8.0
Tolerance cm3/1000 strokes	: 8.0
Check tolerance cm3/1000s.	: 12.0
Aneroid pressure	: -
Rated speed rpm Del. quantity	: 500
cm3/1000 strokes Tolerance	: 122.0
cm3/1000 strokes Check tolerance	: +- 1.0
cm3/1000s.	: +- 4.0
STARTING FUEL DEL	TVEDY
Del. quantity	TAFUI
cm3/1000 strokes Tolerance	: 156.0
cm3/1000 strokes	: +- 15.0

Check tolerance		
cm3/1000s.	; +-	19.0

# LOW IDLE

Rated speed rpm	:	275
Del. quantity		74.0
cm3/1000 strokes	:	31.0
Tolerance		2.0
cm3/1000 strokes Check tolerance	; —	2.0
cm3/1000s.		5.0
Spreed	, 4-	3.0
Tolerance		
cm3/1000 strokes		8.0
Check tolerance	•	0.0
cm3/1000s.	•	12.0
VIII- 1-0-0-01	•	

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 27,01,97 Edition Test oil : ISO 4113

Combination No. : 0 402 748 812

Injection pump

Pump designation : PES8P120A720LS7425 EP type number : 0 412 728 814

Governor

Governer design. : RQV350...1200PA1310K

Governer no. : 0 421 815 541

Cust. part No. : CCEP 5164 66-136

Customer spec. information

Customer : RENAULT V.I. Motor : MACK E9-750

Power KW : 552.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C 40 Tolerance °C : +- 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Overflow quantity

min. L/h Tolerance L/h: +- 20.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

208.5 bar : +- 1.5 Tolerance bar

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery cuant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0
Telerance bar : + 1.0

Prestroke mm 3.75 : + G.05 Toterance mm

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm: 10.00 Tolerance mm :  $\leftarrow$  0.50

Firing order : 1-2-7-8-4

Phasing : 0-45-90-135-180

: -270-315

: **←** 0.30 Tolerance

Check

: **←** 0.50 tolerance \*NW

Start of delivery mark

\*NW after s.o.d. : -0.15 : **←** 0.50 Tolerance

Check

tolerance \*NW

: ← 0.75

Barrel no. : 1

Beginning of delivery differende

betw. rack trav.

21.00

and maximum rack

10.00 travel Difference \* CS : 4.25

		‡ R	ated speed rpm	: 350
	·	—	uide sleeve	
ZERO POSITION			ravel mm	: 1.90
			olerance mm	: +- 0.20
		÷		
travel in mm			ated speed rpm	: 833
ance mm	: +- 0.05		uide sleeve	
		+ t	ravel mm	: 5.90
		<del></del> + т	olerance mm	: <b>←</b> 0.25
SETIING		+ -		
anned ann	. 4200		ated speed rpm	: 480
speed rpm	: 1200		uide sleeve	
			ravel mm	: 3.27
quantity		+ 7	olerance mm	: <b>+</b> 0.25
300 strokes	: 305.0			
		+ R	ated speed rpm	: 1570
ance			uide sleeve	
000 strokes	: <del>+</del> 1.0		ravel mm	: 13.50
	• • • • • • • • • • • • • • • • • • • •		olerance mm	: +- 0.50
tolerance		— I ''	oterance min	0.50
000s.	: +- 4.0	Ī -		
		+ G	UIDE SLEEVE POSI	TION
•		— ļ		
		+		
nce			ontrol lever	
00 strokes	: 4.0		osition degree	: - 1
			ated speed rpm	
olerance		+		
S.	: 8.0	. ↓ R	ack travel in mo	: 12.30
	- · <del>-</del>	1	olerance mm	
		+		
speed rpm	: 325	Ī F	ULL LOAD DELIVER	Y AT FULL LOAD S
of or an artifaction		+		
travel in mm	: -6.40	+ R	ated speed rpm	: 1200
ance mm	: + 0.10	1	neroid pressure	
quantity			Pa	: 1200
000 strokes	: 53.0		el. quantity	
ance	. 20.0		m3/1000 strokes	: 305.0
000 strokes	; <del></del> 2.0		olerance	• 505.0
	. + 2.0			4.0
tolerance			m3/1000 strokes	: + 1.0
<b>0C</b> S.	: +- 6.0		heck tolerance	
			m3/1000s.	: +- 4.0
nce			preed	
	: 8.0		olerance	
olerance		+ c	m3/1000 strokes	: 4.0
Os.	: 12.0	+ c	heck tolerance	
			m3/1000s.	: 8.0
		+		
-	ECTION PUMP	+		
VERNOR		+ -		<del></del>
		+ c	ONTROL LEVER	
SLEEVE TRAVE	1	– † .	ontrol lever	
SEEVE INAVE	L		ontrol (ever osition degree	: 117.0
peed rpm	: 1255		olerance degree	
SECT LINII	• 1633	T	orenance dealee	. +- 4.0
eve	. 0 50	١ ^	ATEN COFFE	
eve n emm	: 9.50 : +- 0.15		ATED SPEED ack travel mm	: -1.00

Rated speed rpm Tolerance 1/min rack travel mm Rated speed rpm Tolerance 1/min rack travel mm Tolerance mm Rated speed rpm	: ← 5 : −9.30 : 1375 : ← 15 : −12.75 : ← 0.55	Tolerance mm  MEASUREMENT  Rated speed rpm  Pressure hPa rack travel mm  Pressure hPa rack travel mm	: 640 : -2.70 : ← 0.20 : 950
		Tolerance mm	
LOW IDLE		+ Start interlock	
control lever position degree tolerance degree		Rated speed rpm Rated speed rpm Check	
Testing:	4.0	speed 1/min	: > 240
Reted speed rpm	: 325	speed 1/min	: < 285
rack travel mm Tolerance mm	: -6.40	FUEL DELIVERY CHA	RACTERISTICS
Rated speed rpm	: 225	Aneroid pressure	4200
CRT mm max.	: < -4.40	+ hPa + Rated speed rpm	: 1200 : 900
Rated speed rpm	: 350	Del. quantity cm3/1000 strokes Tolerance	: 293.0
TORQUE CONTROL		- + cm3/1000 strokes T Check tolerance	
Rated speed rpm	: 1200	cm3/1000s.	: + 6.0
Rated speed rpm		+ Aneroid pressure + hPa - Rated speed rom	: - : 500
rack travel mm Tolerance mm		Del. quantity cm3/1000 strokes	
Rated speed rpm rack travel mm Tolerance mm	: 600 : −1.60 : ← 0.15	Tolerance cm3/1000 strokes Check tolerance	: ← 1.0
		cm3/1000s.	: +- 4.0
ANEROID/ALTITUDE COMPENSATOR TEST		STARTING FUEL DEL	TVERY
SETTING		+	
	. 1200	+ Rated speed rpm - rack travel mm	: 20.50
Rated speed rpm Pressure hPa Tolerance mm	: 1200	Tolerance mm Del. quantity cm3/1000 strokes	
Pressure hPa	: -	Tolerance cm3/1000 strokes	
Rated speed rpm rack travel mm		Check tolerance cm3/1000s.	

## LOW IDLE

Rated speed rpm : 325
Del. quantity
cm3/1000 strokes : 53.0
Tolerance
cm3/1000 strokes : + 2.0
Check tolerance
cm3/1000s. : + 6.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000 strokes : 12.0

## Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 04,10,96 Test oil : ISO 4113

Combination No. : 0 402 796 033

Injection pump

Pump designation : PES6H12O/72OLS7 EP type number : 0 412 726 004

Governor

Governer design. : RE36

Governer no. : 0 421 890 360

Cust. part No. : 0250745702

Customer-spec. information Customer : MB-NFZ Motor : OM 447 LA

## TEST BENCH REQUIREMENTS

Inlet line : 3.2 EHAB

Test oil inlet

temp. °C Tolerance °C

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0 Tolerance bar : +- 0.1

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

: 208.5 bar Tolerance bar : +- 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0 x length mm **600** 

#### REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS No basic setting. Setting of constant delivery under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar :  $\leftarrow$  1.0

Prestroke mm : 7.00 : ← 0.05 Tolerance mm Check tolerance mm : ← 0.10

Rack travel in mm : 10.50 Tolerance mm :  $\leftarrow$  0.50

: 6-2-4-1-5-Firing order

: 3

Phasing : 0-60-120-180-240

Tolerance : **←** 0.50

Check

tolerance "NW : **←** 0.75

Start of delivery mark

Tolerance : **←** 0.50 Check tolerance \*NW : +- 0.75

Barrel no. : 6

(B) POSITIONER TESTING Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR in stop position POSITION Engine speed min-1: 60 Amplitude V : 1.4
Tolerance V : +/- 0.4 Engine speed min-1: Tolerance V : +/- 0.6 Setting point Check (F, R and H pump) tolerance V : ÷/- 1.20 : 3.100 : 13.00 Uact V 3,100 Engine speed min-1: 600 Difference CRT ram Toterance mm : +/- 0.05 Amplitude to Check Amplitude V : max.1.4 tolerance mm : +/- 0.10 Check value (P, R and H pump) (C) INJECTION PUMP WITH POSITIONER TEST POINT V1 1.700 Uact V CRT mm 6.15 Rated speed rpm : 800 Tolerance mm : +/- 0.25 Uact V 2.650 Check Prestroke solenoid : +/- 0.30 9.00 talerense ma Stroke mm Del. quantity cm3/1000 strokes : 302.0 Setting point Tolerance (M pump) cm3/1000 strokes :  $\leftarrow$  1.0 Check tolerance 3,100 cm3/1000s. Uact V : +- 4.0 : CRT mm 12.50 Spreed Tolerance mm : +/~ 0.05 Tolerance cm3/1000 strokes : Check tolerance mm : +/- 0.10 Check tolerance cm3/1000s. Check value (M pump) FUEL DELIVERY CHARACTERISTICS Uact V : 1.700 : 5.50 Rated speed rpm : 1100 CRT mm Uact V 2.750 Tolerance mm : +/- 0.25 Prestroke solenoid Check Stroke mm 6,00 tolerance mm : +/= 0.30 Del. quantity cm3/1000 strokes : 302.0 Stop position Tolerance cm3/1000 strokes :  $\leftarrow$  5.0 Uact V : Value with Check tolerance deenergised adjusting magnet cm3/1000s. : +and control rod in stop position. Rated speed rpm : 550 CRT mm 0.75 Uact V 2.350 : +/- 0.25 Tolerance mm Prestroke solenoid Check Stroke mm tolerance mm : +/- 0.35 Del. quantity cm3/1000 strokes : 272.0 Tolerance ENGINE-SPEED SENSOR cm3/1000 strokes : +- 8.0(All P and R pumps not Check tolerance cm3/1000s. H and M pumps) : +- 11.0

Test with control rod

5.0

9.0

8.0

9.00

# TEST POINT L1

Rated speed rpm	:		300
Uact V	:		1.440
Tolerance Volt	:	+-	0.060
Check tolerance			
Volt	•	+-	0.060
Prestroke solenoid	1		
Stroke mm	•		9.GO
Del. quantity			
cm3/1000 strokes	:		25.0
Tolerance			
cm3/1000 strokes	:	+-	3.ນ
Spreed			
Tolerance			
cm3/1000 strokes	:		6.0
Check tolerance			
cm3/1000s.	:		9.0

# STARTING FUEL DELIVERY

Rated speed rpm	:	100	
Uact V	:	1.900	
Prestroke solenoi	d		
Stroke mm	•	9.00	
Del. quantity			
cm3/1000 strokes	:	104.0	
Tolerence			
cm3/1000 strokes	: +	- 10.0	

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 16.12.96 : ISO 4113 Test oil

Combination No. : 0 402 796 204

Injection pump

Pump designation : PES6H120/720/3LS1005

: -1

EP type number : 0 412 725 204

Governor

Governer design. : RE33

Governer no. : 0 421 890 364

Cust. part No. : 51.11103-7539

Customer-spec. information

: MAN Customer

: D 2866 LF 16 Motor

Power KW : 294.0

## TEST BENCH REQUIREMENTS

Inlet line : 4-unten

Test oil inlet

temp. °C 40 Tolerance °C : +- 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : : +-Tolerance bar

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

bar 208.5 Tolerance bar : +- 1.5

: 1 680 750 089 Test lines

Outside diameter : 8.0

x inside diameter : 3.0 x length mm : 600

#### REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : ← 1.0

Prestroke mm : 10.00 : +- J.05 Tolerance mm

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50

Tolerance mm :  $\leftarrow$  0.50

Firing order : 6-2-4-1-5-

: 3

Phesing : 0-60-120-180-240

Tolerance : **←** 0.50

Check

: + 0.75tolerance \*NW

## Start of delivery blocking

Tolerance : +- 0.10

Check

tolerance \*NW : + - 0.75

Barrel no. : 6

(B) POSITIONER TESTING Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 V

TESTING & SETTING MACK TRAVEL SENSOR POSITION
Engine speed min-1: 0
Setting point (P, R and H pump)
Uact V : 3.100 CRT mm : 13.00 Tolerance mm : +/- 0.05 Check tolerance mm : +/- 0.10
Check value (P, R and H pump)
Uact V : 1.700 CRT mm : 6.15 Tolerance mm : +/- 0.25 Check tolerance mm : +/- 0.30
Setting point (M pump)
Uact V : 3.100 CRT mm : 12.50 Tolerance mm : +/- 0.05 Check tolerance mm : +/- 0.10
Check value (M pump)
Unct V : 1.700 CRT mm : 5.50 Tolerance mm : +/- 0.25 Check tolerance mm : +/- 0.30
Stop position
Uact V : Value with deenergised adjusting magnet and control rod in
stop position.  CRT mm : 0.75  Tolerance mm : +/- 0.25  Check tolerance mm : +/- 0.35
ENGINE-SPEED SENSOR (All P and R pumps not H and M pumps)

Test with control rod in stop position

Engine speed min-1: 60
Amplitude V: 1.4
Tolerance V: +/- 0.6
Check
tolerance V: +/- 1.20

Engine speed min-1: 600

Difference Amplitude to

Amplitude V : max.1.4

# (C) INJECTION PUMP WITH POSITIONER

## TEST POINT V1

750 Rated speed rpm Uact V 3.350 Prestroke solenoid Stroke mm 10.00 Del. quantity cm3/1000 strokes : 328.0 Tolerance cm3/1000 strokes : +-1.0 theck toterance cm3/1000s. 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. 9.0

## FUEL DELIVERY CHARACTERISTICS

Rated speed rpm 750 1.450 Uact V Prestroke solenoid Stroke mm 10.00 Del. quantity cm3/1000 strokes : 72.0 Tolerance cm3/1000 strokes : +-4.0 Check tolerance cm3/1000s. 8.0 : +-Spreed Tolerance cm3/1000 strokes : 4.0 Check tolerance cm3/1000s.8.0 1000 Rated speed rpm 3.290 Uact V Prestroke solenoid 8.00 Stroke mm Del. quantity

cm3/1000 strokes :

310.0

Tolerance				
cm3/1000 strokes	: +	-	4.0	
Check tolerance	•		****	
cm3/1000s.		_	8.0	
Chis/ 1000s.	• •		0.0	
Dated speed asp			500	
Rated speed rpm	:			
Uact V	.:		2.900	
Prestroke solenoi	d			
Stroke mm	:		9.20	
Del. quantity				
cm3/1000 strokes	:		303.0	
Tolerance				
cm3/1000 strokes	• 4	<b>—</b>	5.0	
Check tolerance	•		J. <b>J</b>	
cm3/1000s.		_	9.0	
	• 7	, -	7.0	
Dated cheed and			500	
Rated speed rpm	•		500	
Uact V	.•		2.100	
Prestroke solenoi	đ			
Stroke mm	:		6.20	
Del. quantity				
cm3/1000 strokes	:		174.0	
Tolerance				
cm3/1000 strokes	: 4	<b>—</b>	4.0	
Check tolerance	•		7.0	
cm3/1000s.		<b>—</b>	8.0	
	• '	•	5.0	
TEST POINT L1				
Rated speed rom	•		300	
Rated speed rpm	:		300	
Uact V	:	<b>-</b>	1.500	
Uact V Tolerance Volt	:	-		
Uact V Tolerance Volt Check tolerance	: +		1.500 0.060	
Uact V Tolerance Volt Check tolerance Volt	: 4		1.500	
Uact V Tolerance Volt Check tolerance Volt Prestroke solenoic	: 4		1.500 0.060 C.C8C	
Uact V Tolerance Volt Check tolerance Volt Prestroke solenoid Stroke mm	: 4		1.500 0.060	
Uact V Tolerance Volt Check tolerance Volt Prestroke solenoid Stroke mm Del. quantity	: 4		1.500 0.060 C.C8C	
Uact V Tolerance Volt Check tolerance Volt Prestroke solenoid Stroke mm	: 4		1.500 0.060 C.C8C	
Uact V Tolerance Volt Check tolerance Volt Prestroke solenoid Stroke mm Del. quantity cm3/1000 strokes	: + d		1.500 0.060 0.080 7.20	
Uact V Tolerance Volt Check tolerance Volt Prestroke solenoid Stroke mm Del. quantity cm3/1000 strokes Tolerance	: + d	_	1.500 0.060 0.080 7.20 36.0	
Uact V Tolerance Volt Check tolerance Volt Prestroke solenoid Stroke mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: + d	_	1.500 0.060 0.080 7.20	
Uact V Tolerance Volt Check tolerance Volt Prestroke solenoid Stroke mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Spreed	: + d	_	1.500 0.060 0.080 7.20 36.0	
Uact V Tolerance Volt Check tolerance Volt Prestroke solenoid Stroke mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Spreed Tolerance	: + d	_	1.500 0.060 0.080 7.20 36.0 3.0	
Uact V Tolerance Volt Check tolerance Volt Prestroke solenoid Stroke mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Spreed Tolerance cm3/1000 strokes	: + d	_	1.500 0.060 0.080 7.20 36.0	
Uact V Tolerance Volt Check tolerance Volt Prestroke solenoid Stroke mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Spreed Tolerance cm3/1000 strokes Check tolerance	: + d: +	_	1.500 0.060 0.080 7.20 36.0 3.0	
Uact V Tolerance Volt Check tolerance Volt Prestroke solenoid Stroke mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Spreed Tolerance cm3/1000 strokes	: + d	_	1.500 0.060 0.080 7.20 36.0 3.0	
Uact V Tolerance Volt Check tolerance Volt Prestroke solenoid Stroke mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Spreed Tolerance cm3/1000 strokes Check tolerance	: + d: +	_	1.500 0.060 0.080 7.20 36.0 3.0	
Uact V Tolerance Volt Check tolerance Voit Prestroke solenoid Stroke mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: + d : +	<u></u>	1.500 0.060 0.080 7.20 36.0 3.0	
Uact V Tolerance Volt Check tolerance Volt Prestroke solenoid Stroke mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Spreed Tolerance cm3/1000 strokes Check tolerance	: + d : +	<u></u>	1.500 0.060 0.080 7.20 36.0 3.0	
Uact V Tolerance Volt Check tolerance Voit Prestroke solenoid Stroke mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  STARTING FUEL DEL	: + d : +	<u></u>	1.500 0.060 0.080 7.20 36.0 3.0 8.0 12.0	
Uact V Tolerance Volt Check tolerance Volt Prestroke solenoid Stroke mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  STARTING FUEL DEL: Rated speed rpm	: + d : +	<u></u>	1.500 0.060 0.080 7.20 36.0 3.0 8.0 12.0	
Uact V Tolerance Volt Check tolerance Voit Prestroke solenoid Stroke mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  STARTING FUEL DEL:	i d	<u></u>	1.500 0.060 0.080 7.20 36.0 3.0 8.0 12.0	
Uact V Tolerance Volt Check tolerance Volt Prestroke solenoid Stroke mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  STARTING FUEL DEL: Rated speed rpm	i d	<u></u>	1.500 0.060 0.080 7.20 36.0 3.0 8.0 12.0	
Uact V Tolerance Volt Check tolerance Volt Prestroke solenoid Stroke mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  STARTING FUEL DEL: Rated speed rpm Uact V Prestroke solenoid	i d	<u></u>	1.500 0.060 C.C8C 7.20 36.0 3.0 8.0 12.0	
Uact V Tolerance Volt Check tolerance Volt Prestroke solenoid Stroke mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  STARTING FUEL DEL: Rated speed rpm Uact V Prestroke solenoid Stroke mm	i d	<u></u>	1.500 0.060 0.080 7.20 36.0 3.0 8.0 12.0	
Uact V Tolerance Volt Check tolerance Volt Prestroke solenoid Stroke mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  STARTING FUEL DEL: Rated speed rpm Uact V Prestroke solenoid Stroke mm Del. quantity	IVER	<u></u>	1.500 0.060 0.080 7.20 36.0 3.0 8.0 12.0	
Uact V Tolerance Volt Check tolerance Volt Prestroke solenoid Stroke mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  STARTING FUEL DEL: Rated speed rpm Uact V Prestroke solenoid Stroke mm Del. quantity cm3/1000 strokes	i d	<u></u>	1.500 0.060 C.C8C 7.20 36.0 3.0 8.0 12.0	
Uact V Tolerance Volt Check tolerance Voit Prestroke solenoid Stroke mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  STARTING FUEL DEL: Rated speed rpm Uact V Prestroke solenoid Stroke mm Del. quantity cm3/1000 strokes Tolerance	i d	<u></u>	1.500 0.060 0.080 7.20 36.0 3.0 8.0 12.0 100 2.450 7.00 183.0	
Uact V Tolerance Volt Check tolerance Volt Prestroke solenoid Stroke mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  STARTING FUEL DEL: Rated speed rpm Uact V Prestroke solenoid Stroke mm Del. quantity cm3/1000 strokes	IVER	<u></u>	1.500 0.060 0.080 7.20 36.0 3.0 8.0 12.0	

Check tolerance			
cm3/1000s.	: +-	14.0	
<del></del>			

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

Edition : 24.01.97
Test oil : ISO 4113

Combination No. : 0 402 796 814

Injection pump

Pump designation : PES6P120A720RS7367

EP type number : 0 412 726 932

Governor

Governer design. : RE30

Governer no. : 0 421 890 026

Cust. part No. :

Customer-spec. information

Motor

Customer : IVECO-FRANCE : 8460.41.6000

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C

Tolerance °C

Overflow valve : 2 417 413 076

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

bar

: 208.5

Tolerance bar : +- 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0 x length mm :

REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS No basic setting.

Setting of constant delivery

under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 2.85
Tolerance mm : + 0.05

Check

: + 0.10 tolerance mm

Rack travel in mm : 20.50 Tolerance mm : + 0.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

Tolerance ÷ 0.50

Check

tolerance \*NW : + 0.75

Start of delivery blocking

Check

tolerance \*NW : +- 0.40

Barrel no. : 1

(B) POSITIONER TESTING Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK FRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point (P, R and H pump)

Uact V : 3.100 CRT mm : 13.00 Tolerance mm : +/- 0.05

Check

tolerance mm : +/- 0.10

Check value (P, R and H pump)

Uact V : 1.700 CRT mm : 6.15 Tolerance mm : +/- 0.25 Sheck

tolerance mm : +/- 0.30

Setting point (M pump)

Uact V : 3.100 CRT mm : 12.50 Tolerance mm : +/- 0.05 Check

uneck

tolerance mm :  $\pm 7 - 0.10$ 

Check value (M pump)

 Uact V
 : 1.700

 CRT mm
 : 5.50

 Tolerance mm
 : +/- 0.25

 Check

uneck

tolerance mm :  $\pm -0.30$ 

Stop position

Uact V : Value with

deenergised adjusting magnet and control rod in

stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25

Check

tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR (All P and R pumps not H and M pumps)

Test with control rod in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check

tolerance V : +/- 1.20

Engine speed min-1: 600

Difference Amplitude to

Amplitude V : max.1.4

# (C) INJECTION PUMP WITH POSITIONER

#### TEST POINT V1

Rated speed rpm : 1050 Uact V : 2.900 Del. quantity cm3/1000 strokes : 296.0 Tolerance cm3/1000 strokes : +- 1.0Check tolerance cm3/1000s. : +- 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. 9.0

# FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 500
Uact V : 2.690
Del. quantity
cm3/1000 strokes : 238.0
Tolerance
cm3/1000 strokes : + 3.0
Check tolerance
cm3/1000s. : + 6.0

#### TEST POINT L1

Rated speed rpm : 275
Uact V : 1.600
Tolerance Volt :  $\leftarrow$  0.060
Check tolerance
Volt :  $\leftarrow$  0.080
Del. quantity
cm3/1000 strokes : 24.0
Tolerance
cm3/1000 strokes :  $\leftarrow$  3.0
Spreed
Tolerance
cm3/1000 strokes : 8.0

Check	tolerance
cm3/10	MOS.

: 12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 23.01.97 Edition : ISO 4113 Test oil

Combination No. : 0 402 798 201

Injection pump

Pump designation : PES8H120/720LS1009

EP type number : 0 412 728 202

Governor

Governer design. : RE33

Governer no. : 0 421 890 368

Cust. part No. : 1364711

Customer-spec. information Customer : SCANIA : DSC 1413/15 Motor : 390.0

Power KW

## TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet

temp. °C Tolerance \*C : **←** 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0 : +- 0.1 Tolerance bar

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

208.5 bar : **←** 1.5 Tolerance bar

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0 x length mm : 600

#### REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS No basic setting. Setting of constant delivery under Section C.

#### BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar  $: \leftarrow 1.0$ 

: 8.00 Prestroke mm : + 0.05 Tolerance mm Check tolerance mm  $: \leftarrow 0.10$ 

Rack travel in mm : 10.50

Tolerance mm:  $\leftarrow 0.50$ 

Firing order : 1-2-7-3-4

: - 6- 8

: 0-45-90-135-180 Phasing

: -270-315 Tolerance : + 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery blocking

Tolerance : + 0.10Check

tolerance °NW : + 0.75

Barrel no. : 1

(B) POSITIONER TESTING Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 V

TESTING & SETTING RAPOSITION	CK TRAVEL SENSOR
Erigine speed min-1:	C
Setting point (P, R and H pump)	
Uact V :	3.100
CRT mm : Tolerance mm :	13.00 +/~ 0.05
Check tolerance mm :	+/- 0.10
	+/- <b>0.10</b>
Check value (P, R and H pump)	
Uact V :	1.700
CRT mia :	6.15
Tolerance mm : Check	+/- 0.25
	+/- 0.30
Setting point (M pump)	
Uact V :	3.100
	3.100 12.50 +/− 0.05
Tolerance mm : : Check	<del>-</del> 7- 0.03
tolerance mm :	+/- 0.10
Check value (M. pump)	
Uact V :	1.700
CRT mm :	5.50 +/~ 0.25
Tolerance mm : Check	+/- U. <i>O</i>
tolerance mm :	+/- 0.30
Stop position	
deenergi	Value with sed adjusting magnet and control rod in
CRT mm :	stop position. 0.75
	+/- 0.25
	+/- 0.35
ENGINE-SPEED SENSOR (All P and R pumps n H and M pumps)	ot

m ocop pooreron	
Forming amount win 1.	0
	0
	1.4
	0.6
Check	
tolerance V : +/-	1.20
Engine speed min-1: 60	C
Difference	
Amplitude to	
Amplitude V : max.	1 /
Ampereuse v . max.	1.4
(C) TALLECTION DUMP LITTLE	DOCTTIONED
(C) INJECTION PUMP WITH	POST LIONER
TEST SOTAIT VA	
TEST POINT V1	
	CO
	.150
Prestroke solenoid	
Stroke mm :	7.60
Del. quantity	
	44.5
Tolerance	
cm3/1000 strokes : +-	1.0
Check tolerance	7.0
cm3/1000s. : +-	6.0
Spreed	
Tolerance	
cm3/1000 strokes :	8.0
Check tolerance	
cm3/1000s. :	12.0
FUEL DELIVERY CHARACTERI	STICS
Rated speed rpm : 9	50
	.450
Prestroke solenoid	• 420
Stroke mm :	8.20
	0.20
Del. quantity	65.0
	<b>0</b> 5.U
Tolerance	
cm3/1000 strokes : +-	4.0
Check tolerance	
$cm3/1000s$ . : $\leftarrow$	7.0
TEST POINT L1	
Rated speed rpm : 2	50
	. 400
	.060
Check tolerance	
Volt : + 0	NAO
Prestroke solenoid	. 000
	0 50
	9.50
Del. quantity	74 0
cm3/1000 strokes :	31.0

Test with control rod in stop position

Tolerance cm3/1000 strokes :  $\leftarrow$  3.0 Spreed

Tolerance

cm3/1000 strokes : Check tolerance cm3/1000s. : 4.0

8.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 22.01.97 Test oil : ISO 4113

Combination No. : 0 403 244 056

Injection pump

Pump designation : PES4MW100/72GRS1525 EP type number : 0 413 204 022

Governor

Governer design. : RQ300/1300MW160 Governer no. : 0 420 082 077

Cust. part No. : 0270749502

Customer—spec. information Customer : MB-NFZ : 0M364LA Motor Power KW : 103.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 31.0 Tolerance bar : + 1.0

Prestroke mm : 4.55 Tolerance mm : + 0.05 Check

tolerance mm : +- 0.10

Rack travel in mm : 20.00 Tolerance mm : + 1.00

Firing order : 1-3-4-2

: 0-90-180-270 Phasing Phasing Tolerance

: +- 0.50

Check

tolerance \*NW : +- 0.75

# BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 13.30 Tolerance mm : ← 0.05

Del. quantity cm3/1000 strokes : 119.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance cm3/1000S. : **←** 3.0

Spreed

Check tolerance cm3/1000s. : 6.0  Rated speed rpm : 300	Tolerance	<u> </u>
Rated speed rpm : 300       control lever position degree : VL         Rack travel in mm : 3.90       control lever position degree : 109 Rated speed rpm : 800         Rack travel in mm : 3.90       Rack travel in mm : 20.00 Rack speed rpm : 800         Tolerance mm : → 0.10       Rack travel in mm : 20.00 Tolerance mm : → 0.80         Check tolerance cm3/1000 strokes : + 2.0       Tolerance mm : → 0.80         Check tolerance cm3/1000s : → 4.5       Rated speed rpm : 1300 Aneroid pressure hpa aneroid		GUIDE SLEEVE POSITION
Rated speed rpm : 300  Rack travel in mm : 3.90 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 12.0 Tolerance cm3/1000 strokes : + 4.5 Spreed Tolerance cm3/1000 strokes : 3.5 Check tolerance cm3/1000 strokes : 3.5 Check tolerance cm3/1000 strokes : 5.5  Spreed Tolerance cm3/1000 strokes : 3.5 Check tolerance cm3/1000 strokes : 3.5 Check tolerance cm3/1000 strokes : 3.5 Check tolerance cm3/1000 strokes : 3.5 Check tolerance cm3/1000 strokes : 3.5 Check tolerance cm3/1000 strokes : 3.5 Check tolerance cm3/1000 strokes : 12.0  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1353 guide steeve travel mm : 6.52 Tolerance mm : + 0.15  Rated speed rpm : 300 guide steeve travel mm : 1.12 Tolerance mm : + 0.20  Rated speed rpm : 1300 guide steeve travel mm : 6.00 Tolerance mm : + 0.10  Rated speed rpm : 458 guide steeve travel mm : 2.45 Tolerance mm : + 0.10  Rated speed rpm : 750 guide steeve travel mm : 2.45 Tolerance mm : + 0.10  Rated speed rpm : 750 guide steeve travel mm : 2.45 Tolerance mm : + 0.10  Rated speed rpm : 750 guide steeve travel mm : 6.00 Tolerance mm : + 0.10  Rated speed rpm : 750 guide steeve travel mm : 6.00 Tolerance mm : + 0.10  Rated speed rpm : 750 guide steeve travel mm : 6.00 Tolerance mm : + 0.10  Rated speed rpm : 750 guide steeve travel mm : 6.00 Tolerance mm : + 0.10  Rated speed rpm : 1570 guide steeve travel mm : 6.00 Tolerance mm : + 0.10  Rated speed rpm : 1570 guide steeve travel mm : 11.50		
Rack travel in mm : 3.90  Rack travel in mm : 3.90  Tolerance mm : → 0.10  Del quantity Check tolerance Cm3/1000 strokes : 4.5  Spreed Tolerance Cm3/1000 strokes : 3.5  Check tolerance Cm3/1000 strokes : 5.5  Spreed Tolerance Cm3/1000 strokes : 3.5  Check tolerance Cm3/1000 strokes : 3.5  Check tolerance Cm3/1000 strokes : 3.5  Check tolerance Cm3/1000 strokes : 3.5  Check tolerance Cm3/1000 strokes : 3.5  Check tolerance Cm3/1000 strokes : 3.5  Check tolerance Cm3/1000 strokes : 119.0  Tolerance Cm3/1000 strokes : 119.0  Tolerance Cm3/1000 strokes : 119.0  Tolerance Cm3/1000 strokes : 119.0  Tolerance Cm3/1000 strokes : 119.0  Tolerance Cm3/1000 strokes : 119.0  Tolerance Cm3/1000 strokes : 119.0  Tolerance Cm3/1000 strokes : 119.0  Tolerance Cm3/1000 strokes : 119.0  Tolerance Cm3/1000 strokes : 3.5  Check tolerance Cm3/1000 strokes : 3.5  Check tolerance Cm3/1000 strokes : 3.5  Check tolerance Cm3/1000 strokes : 3.5  Check tolerance Cm3/1000s. : → 3.0  Spreed Tolerance Cm3/1000 strokes : 12.0  Tolerance Cm3/1000		
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Rated travel in mm : 3.90   Tolerance mm : + 0.10	Rated speed rpm : 300	
Tolerance mm	Rack travel in mm · 3 90	
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Tolerance mm   : + 0.80		- Rack travel in mm · 20 00
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cm3/1000 strokes : → 2.0       Check tolerance       1300         cm3/1000.       : → 4.5       Rated speed rpm : 1300         Spreed       Aneroid pressure       hPa : 1200         Check tolerance       cm3/1000 strokes : 3.5       bel. quantity         Check tolerance       cm3/1000 strokes : 119.0       Tolerance         CMJDE SITTING OF INJECTION PUMP       Check tolerance       cm3/1000 strokes : 119.0         GUIDE SLEEVE TRAVEL       Spreed       Tolerance         Rated speed rpm : 1353       guide sleeve       cm3/1000 strokes : 3.5         travel mm : + 0.15       CONTROL LEVER         Rated speed rpm : 300       guide sleeve       control lever         travel mm : + 0.20       tolerance degree : → 4.0         Rated speed rpm : 1300       RATED SPEED         guide sleeve       rack travel mm : 12.30         travel mm : - 0.10       Rated speed rpm : 1345         Tolerance mm : + 0.10       Tolerance l/min : + 5         Rated speed rpm : 1465       Tolerance l/min : + 5         rack travel mm : 2.45       Tolerance l/min : + 15         Tolerance mm : + 0.10       Rated speed rpm : 1465         Rated speed rpm : 50       rack travel mm : 0.50         Rated speed rpm : 1575       rack travel mm : - 0.50		L COUNTRY TO SECONDARY
Check tolerance cm3/1000s.         : → 4.5           Spreed         Rated speed rpm         : 1300           Tolerance cm3/1000 strokes         : 3.5         hPa         : 1200           Check tolerance cm3/1000s.         : 5.5         Del. quantity cm3/1000 strokes         : 119.0           (B) SETTING OF INJECTION PUMP WITH GOVERNOR         Check tolerance cm3/1000 strokes         : + 3.0           GUIDE SLEEVE TRAVEL         Spreed cm3/1000 strokes         : 3.5           Rated speed rpm         : 1353         cm3/1000 strokes         : 3.5           GUIDE SLEEVE TRAVEL         Check tolerance cm3/1000 strokes         : 3.5           Rated speed rpm         : 1353         cm3/1000 strokes         : 3.5           Rated speed rpm         : 0.15         CONTROL LEVER           Rated speed rpm         : 0.15         CONTROL LEVER           Rated speed rpm         : 0.20         control lever control lever control lever position degree         : 95.0           Tolerance mm         : 0.20         rack travel mm         : 12.30           Rated speed rpm         : 1300         rack travel mm         : 12.30           Rated speed rpm         : 4.00         rack travel mm         : 4.00           Rated speed rpm         : 458         rack travel mm         :		
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cm3/1000 strokes : 3.5       hPa : 1200         check tolerance cm3/1000s : 5.5       cm3/1000 strokes : 119.0         CB) SETTING OF INJECTION PUMP WITH GOVERNOR       Check tolerance cm3/1000 strokes : + 1.0         GUIDE SLEEVE TRAVEL       Check tolerance cm3/1000s : + 3.0         Rated speed rpm : 1353 guide sleeve travel mm : + 0.15       Check tolerance cm3/1000s : 6.0         Rated speed rpm : 300 guide sleeve travel mm : + 0.20       control lever position degree : 95.0 tolerance degree : + 4.0         Rated speed rpm : 1300 guide sleeve travel mm : + 0.10       RATED SPEED rack travel mm : 12.30 Rated speed rpm : 1345 Tolerance 1/min : + 5         Rated speed rpm : 458 guide sleeve travel mm : 2.45 Tolerance mm : + 0.10       Rated speed rpm : 1465 Tolerance 1/min : + 15         Rated speed rpm : 750 guide sleeve travel mm : 6.00 Tolerance mm : + 0.10       Rated speed rpm : 1575 Tolerance mm : + 0.50         Rated speed rpm : 500 Tolerance mm : + 0.10       Rated speed rpm : 1575 Tolerance mm : + 0.50         Rated speed rpm : 1570 guide sleeve travel mm : 11.50       1575		
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cm3/1000S.       : 5.5         (B) SETTING OF INJECTION PUMP WITH GOVERNOR       cm3/1000 strokes : + 1.0 check tolerance cm3/1000S.         GUIDE SLEEVE TRAVEL       cm3/1000 strokes : + 3.0 spreed Tolerance cm3/1000 strokes : 3.5 check tolerance cm3/1000 strokes : 3.5 check tolerance cm3/1000S.         Rated speed rpm : 1353 guide sleeve travel mm : 6.52 Tolerance mm : + 0.15       control Lever control lever control lever position degree : 95.0 tolerance degree : + 4.0         Rated speed rpm : 1300 guide sleeve travel mm : + 0.20       RATED SPEED rack travel mm : 12.30 rack dispeed rpm : 1345 Tolerance 1/min : + 5         Rated speed rpm : 458 guide sleeve travel mm : 2.45 Tolerance mm : + 0.10       rack travel mm : 4.00 rack travel mm : 4.00 rack travel mm : 0.50 rack travel mm : - 0.50 rack travel mm :		
(B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1353 guide sleeve travel mm : ← 0.15  Rated speed rpm : 300 guide sleeve travel mm : ↑ 0.20  Rated speed rpm : 1300 guide sleeve travel mm : ← 0.20  Rated speed rpm : 1300 guide sleeve travel mm : ← 0.10  Rated speed rpm : 1300 guide sleeve travel mm : ↑ 0.20  Rated speed rpm : 1300 guide sleeve travel mm : ← 0.10  Rated speed rpm : ↑ 0.10  Rated speed rpm : ↑ 0.10  Rated speed rpm : ↑ 0.10  Rated speed rpm : ↑ 0.10  Rated speed rpm : ↑ 0.10  Rated speed rpm : ↑ 0.10  Rated speed rpm : ↑ 0.10  Rated speed rpm : ↑ 0.10  Rated speed rpm : ↑ 0.10  Rated speed rpm : ↑ 0.10  Rated speed rpm : ↑ 0.10  Rated speed rpm : ↑ 0.10  Rated speed rpm : ↑ 0.10  Rated speed rpm : ↑ 0.10  Rated speed rpm : ↑ 0.10  Rated speed rpm : ↑ 0.50 Tolerance mm : ← 0.		
(B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1353 guide sleeve travel mm : 6.52 Tolerance mm : + 0.15  Rated speed rpm : 1300 guide sleeve travel mm : 0.20  Rated speed rpm : 1300 guide sleeve travel mm : + 0.20  Rated speed rpm : 1300 guide sleeve travel mm : + 0.10  Rated speed rpm : 1300 Rated speed rpm : 1300 guide sleeve travel mm : - 0.10  Rated speed rpm : 458 guide sleeve travel mm : 2.45 Tolerance mm : + 0.10  Rated speed rpm : 458 guide sleeve travel mm : 2.45 Tolerance nm : + 0.10  Rated speed rpm : 458 guide sleeve travel mm : - 0.10  Rated speed rpm : 1465 Tolerance 1/min : + 15 Tolerance 1/min : + 0.50 Rated speed rpm : 1570 guide sleeve travel mm : - 0.10  Rated speed rpm : 1570 guide sleeve travel mm : - 0.10  Rated speed rpm : 1570 guide sleeve travel mm : - 1575  LOW IDLE		
(B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1353 guide sleeve travel mm : 6.52 Tolerance mm : + 0.15  Rated speed rpm : 300 guide sleeve travel mm : - 0.20  Rated speed rpm : 1300 guide sleeve travel mm : 6.00 Tolerance mm : + 0.10  Rated speed rpm : 458 guide sleeve travel mm : 2.45 Tolerance mm : + 0.10  Rated speed rpm : 2.45 Tolerance mm : + 0.10  Rated speed rpm : 550 guide sleeve travel mm : 2.45 Tolerance mm : + 0.10  Rated speed rpm : 1570 guide sleeve travel mm : 6.00 Tolerance mm : + 0.10  Rated speed rpm : 1570 guide sleeve travel mm : - 0.10  Rated speed rpm : 1570 guide sleeve travel mm : - 0.10  Rated speed rpm : 1570 guide sleeve travel mm : - 1570 guide sleeve travel mm : - 1570 guide sleeve travel mm : - 1570 guide sleeve travel mm : - 1570 guide sleeve travel mm : - 1570 guide sleeve travel mm : - 1570 guide sleeve travel mm : - 1570 guide sleeve travel mm : - 1570 guide sleeve travel mm : - 1570 guide sleeve travel mm : - 1570 guide sleeve travel mm : - 1570 guide sleeve travel mm : - 1570 guide sleeve travel mm : - 1570 guide sleeve travel mm : - 1570 guide sleeve travel mm : - 1570	-	
## GOVERNOR    Cm3/1000s.	(B) SETTING OF INJECTION PUMP	
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guide sleeve       travel mm       : 1.12       position degree       : 95.0         Tolerance mm       : + 0.20       tolerance degree       : + 4.0         Rated speed rpm       : 1300       RATED SPEED       rack travel mm       : 12.30         Rated speed rpm       : 6.00       Rated speed rpm       : 1345       Tolerance 1/min       : + 5         Rated speed rpm       : 458       rack travel mm       : 4.00       Rated speed rpm       : 1465       Tolerance 1/min       : + 15         Tolerance mm       : + 0.10       rack travel mm       : 0.50       Tolerance 1/min       : + 0.50       Rated speed rpm       : 1575         Rated speed rpm       : 6.00       Tolerance mm       : + 0.50       Rated speed rpm       : 1575         Rated speed rpm       : 1570       Rated speed rpm       : 1575       LOW IDLE	Pated speed row . 300	L CONTROL LEVER
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guide sleeve       rack travel mm       : 12.30         travel mm       : 6.00       Rated speed rpm       : 1345         Tolerance mm       : + 0.10       Tolerance 1/min       : + 5         Rated speed rpm       : 458       rack travel mm       : 4.00         guide sleeve       Rated speed rpm       : 1465         travel mm       : - 0.10       rack travel mm       : - 0.50         Rated speed rpm       : 750       Rated speed rpm       : + 0.50         guide sleeve       Rated speed rpm       : 1575         travel mm       : - 0.10       - 0.10         Rated speed rpm       : 1570       - 0.10	Total differ than	r total degree 4.0
guide sleeve       color travel mm       : 6.00       Rated speed rpm       : 1345         Tolerance mm       : + 0.10       Tolerance 1/min       : + 5         Rated speed rpm       : 458       rack travel mm       : 4.00         guide sleeve       : 2.45       Tolerance 1/min       : + 15         Tolerance mm       : + 0.10       rack travel mm       : 0.50         Rated speed rpm       : 750       rack travel mm       : 0.50         Rated speed rpm       : 6.00       Tolerance mm       : + 0.50         Rated speed rpm       : 1575       1575         Rated speed rpm       : 1570       LOW IDLE         LOW IDLE       LOW IDLE	Rated speed rpm : 1300	RATED SPEED
travel mm       : 6.00       Rated speed rpm       : 1345         Tolerance mm       : + 0.10       Tolerance 1/min       : + 5         Rated speed rpm       : 4.00       Rated speed rpm       : 1465         travel mm       : 2.45       Tolerance 1/min       : + 15         Tolerance mm       : + 0.10       rack travel mm       : 0.50         Rated speed rpm       : 750       Rated speed rpm       : 1575         guide sleeve travel mm       : + 0.10       - 1575         Rated speed rpm       : 1570       - 1570         guide sleeve travel mm       : 1570       - 1570         Tolerance mm       : 1570       - 1570         Tolerance mm       : 1570       - 1570         Tolerance mm       : 1570       - 1570         Tolerance mm       : 1570       - 1570         Tolerance mm<	guide sleeve	
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olerance mm		Spreed Tolerance	, ,,,	
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RT mm min.	: > 4.30	cm3/1000s.		
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Rated speed rpm	: 1300	Del. quant		
rack travel mm	: 13.30	+ cm3/1000 st	trokes : 105.0	
Tolerance mm	: <del>←</del> 0.05	+ Tolerance	tooloo - 1 4.5	
Rared speed rpm	: 750	+ cm3/1000 st	trokes : +- 1.5	
rack travel mm Tolerance mm	: 13.30	- cm3/1000s.		
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NEROID/ALTITUDE			d rpm : 500	
OMPENSATOR TEST		+ Del. quant	ity	
			trokes : 73.0	
SETTING		+ Tolerance + cm3/1000 si	trokes : +- 1.0	
NET I TIAG		+ Check tole		
Rated speed rpm	: 500	+ cm3/1000s.		
Pressure hPa	: 1200	+		
rack travel mm Tolerance mm	: 13.30 : +- 0.05	İ		
roter artice min	0.05	I STARTING FU	UEL DELIVERY	
Pressure hPa		<del>}</del>		
Rated speed rpm			d rpm : 100	
Tolerance mm	: 0.10	Del. quant	ity trokes : 150.0	
MEASUREMENT		Tolerance	C. J.C 170.0	
		- cm3/1000 st	trokes : + 5.0	
Rated speed rpm	: 500	+ Check toler + cm3/1000s.		
Pressure hPa	: 400		: +- 8.0	
rack travel mm	2.00	+		
Tolerance mm	: <b>←</b> 0.10	†		
Pressure hPa	• 200	LOW IDLE		
rack travel mm		I COM IDEE		
Tolerance mm			d rpm : 300	
0 to 1 to 1 to 1		Del. quant		
Start interlock		+ cm3/1000 st + Tolerance	trokes: 12.0	
			trokes : +- 2.0	
		🕂 Check toler	rance	
FUEL DELIVERY CHA	RACTERISTICS	- cm3/1000s.	: <del>←</del> 4.5	
		+ Spreed		

Tolerance

cm3/1000 strokes : 3.5

Check tolerance cm3/1000s. : 5.5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 23.01.97 Test oil : ISO 4113

Combination No. : 0 403 474 008I

Injection pump

Pump designation : PES4MW100/720RS1181

EP type number : 0 413 404 107

Governor

Governer design. : RSV400...1000MW1A333

Governer no. : 0 420 085 118

Cust. part No. : 9881020

Customer-spec. information

Customer : LIEBHERR
Motor : D924T-F Motor : D924T-E A2

Power KW : 75.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C 40 : ← 2.0 Tolerance °C

Overflow valve : 1 417 413 949

Inlet press. bar : 1.5

Test nozzle holde

: 0 681 343 009 assembly

Opening pressure

bar : 173.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 31.0 Tolerance bar : + 1.0

Prestroke mm : 3.05 Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50

Tolerance mm : + 1.50

Firing order : 1-3-4-2

: 0-90-180-270 : ← 0.50 Phasing

Tolerance

Check

tolerance \*NW : + 0.75

BASIC SETTING

Rated speed rpm : 740

Rack travel in mm: 11.45

Tolerance mm :  $\leftarrow$  0.05

Del. quantity cm3/1000 strokes : 141.5

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance

cm3/1000s. :  $\leftarrow$  4.0

Spreed

Tolerance

cm3/1000 strokes : 4.0

Charl Aslanaus	†
Check tolerance cm3/1000s. : 7.5	CONTROL LEVED
UND/10003. ; /.5	+ CONTROL LEVER
	I control lever
	position degree : 81.5
Rated speed rpm : 400	tolerance degree : +- 4.0
	+ total and degree 4.0
Rack travel in mm: 5.00	+ RATED SPEED
Tolerance mm : + 0.10	+ rack travel mm : 10.45
Del. quantity	Rated speed rpm : 760
cm3/1000 strokes : 9.0	+ Tolerance 1/min : +- 5
Tolerance	+
cm3/1000 strokes : + 2.0	+ rack travel mm : 4.00
Check tolerance	+ Rated speed rpm : 775
cm3/1000s. : + 4.5	+ Tolerance 1/min : +- 5
် <b>p</b> း <b>ec</b> d	†
Tolerance	track travel mm : 1.00
cm3/1000 strokes : 3.5	Tolerance mm : + 0.70
Check tolerance cm3/1000s. : 5.0	Rated speed rpm : 950
cm3/1000s. : 5.0	+ rack travel mm : 4.00
	+ rack travel mm : 4.00 + Rated speed rpm : 790
(B) SETTING OF INJECTION PUMP	T Rated Speed rpm : 790
WITH GOVERNOR	I
WITH GOVERNOR	I
	+ LOW ICLE
GUIDE SLEEVE POSITION	
	+
	+ control lever
control lever	position degree : 66.5
position degree : -3_	+ tolerance degree : +- 4.0
Rated speed rpm : 800	
	† Setting point w/out bumper spring
Rack travel in mm: 0.65	†
Tolerance mm : ← 0.35	Rated speed rpm : 400
	+ rack travel mm : 3.75
governor spring	Tolerance mm : +- 0.10
pre-tension	Tooking
click setting x : 1.50	† Testing:
	Rated speed rpm : 400
FULL LOAD DELIVERY AT FULL LOAD STOP	rack travel mm : 5.00
THE BALL CHERTOLL III LEEP PAUL ALA	+ Tolerance mm : + 0.10
Rated speed rpm : 740	+
Aneroid pressure	frack travel mm : 2.00
hPa : -	Rated speed rpm : 500
Del. quantity	Tolerance 1/min : + 30
cm3/1000 strokes : 141.5	+
Tolerance	+ Rated speed rpm : 100
cm3/1000 strokes : + 1.0	†
Check tolerance	+ CRT mm min. : > 19.00
cm $3/1000$ s. : $+$ 4.0	†
Spreed	
Tolerance	+ TORQUE CONTROL
cm3/1000 strokes : 4.0	7/2
Check tolerance	Rated speed rpm : 740
cm3/1000s. : 7.5	+ rack travel mm : 11.45
	+ Tolerance mm : + 0.05

Rated speed rpm rack travel mm Tolerance mm	: 500 : 11.45 : ← 0.05	
Rated speed rpm rack travel mm Tolerance mm	: 750 : 10.80 : ← 0.05	-

Start interlock

Aneroid pressure

# FUEL DELIVERY CHARACTERISTICS

:		-
:		500
:		132.0
:	+-	2.0
:	+	5.0
:		6.0
		9.0
•		9.0
•		• •
•		750
•		. , ,
:		131.0
-		
:	+-	1.0
:	+-	4.0
		: +-

# STARTING FUEL DELLVERY

Rated speed rpm	:		100
rack travel mm	:		20.25
Tolerance mm	:	+-	0.75
Del. quantity			
cm3/1000 strokes	:		135.0
Tolerance			
cm3/1000 strokes	•	+	5.0
Check tolerance			
cm3/1000s.	•	+	8.0

LOW IDLE

Rated speed rpm	:	400
Del. quantity cm3/1000 strokes	:	9.0
Tolerance cm3/1000 strokes	: +-	- 2.0
Check tolerance cm3/1000s.	: +-	- 4.5
Spreed Tolerance		
cm3/1000 strokes Check tolerance	:	3.5
cm3/1000s.	:	5.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 29.01.97 Test oil : ISO 4113

Combination No. : 0 403 476 147

Injection pump

Pump designation : PES6MW100/720RS1131

EP type number : 0 413 406 165

Governor

Governer design. : RSV750...1200MW0A329

: -17

Governer no. : 0 420 085 291

Cust. part No. : 0270747902

Customer-spec. information Customer : MB-NFZ

: 0M366LA Motor Power KW : 163.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C 40 ÷ + 2.0 Tolerance °C

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

bar : 208.5 Tolerance bar : ← 1.5 bar

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0

x length mm ; 600

#### **REMARKS**

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 31.0 Tolerance bar : +- 1.0

Prestroke mm : 3.65
Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm: 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

Phasing Tolerance : +- 0.50

Check

tolerance \*NW : **←** 0.75

#### BASIC SETTING

Rated speed rpm : 1180

Rack travel in mm : 13.15 Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 104.0

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance

cm3/1000s. : +- 3.0

Spreed

Tolerance cm3/1000 strokes : 3.5	Check tolerance cm3/1000s. : 6.0
Check tolerance cm3/1000s. : 6.0	
	CONTROL LEVER
Rated speed rpm : 750	- control lever - position degree : 103.0 - tolerance degree : +- 4.0
Rack travel in mm: 4.70	
Tolerance mm : + 0.25  Del. quantity	- RATED SPEED
cm3/1000 strokes : 12.0	rack travel mm : 1.00 Tolerance mm : +- 0.70
Tolerance - cm3/1000 strokes : +- 2.0	- Tolerance mm : +- 0.70 - Rated speed rpm : 1400
Check tolerance	- Kated Speed Ipin : 1400
cm3/1000S. : ← 4.5 Spreed	ASSEMBLY GOVERNOR SETTING
Tolerance	- Rated speed rpm : 1230
cm3/1000 strokes : 3.5 Check tolerance	rack travel mm : 12.10
cm3/1000s. : 5.5	- Rated speed rpm : 1300
	Tolerance 1/min : +- 4
(B) SETTING OF INJECTION PUMP	rack travel mm : 4.00
WITH GOVERNOR	
†	- Rated speed rpm : 1231
	rack travel mm : 12.10
GUIDE SLEEVE POSITION	- Rated speed rpm : 1301
†	Tolerance 1/min : + 4
control lever	- rack travet mm : 4.00
position degree : -3	
Rated speed rpm : 800	- Rated speed rpm : 1232 - rack travel mm : 12.10
Rack travel in mm: 0.65	- rack travet mm : 12.10
Yolerance mm : + 0.35	- Rated speed rpm : 1302
	- Tolerance 1/min : + 4 - rack travel mm : 4.00
governor spring pre-tension	rack travet mm : 4.00
click setting x : 4.75	
	- Rated speed rpm : 1233 - rack travel mm : 12.10
FULL LOAD DELIVERY AT FULL LOAD STOP	
4400	Rated speed rpm : 1303
Rated speed rpm : 1180 Aneroid pressure	- Tolerance 1/min : +- 4 - rack travel mm : 4.00
hPa : 1000	-
Del. quantity cm3/1000 strokes : 104.0	- - Rated speed rpm : 1238
Tolerance	- Rated speed rpm : 1238 - rack travel mm : 12.10
cm3/1000 strokes : + 1.0	- - Rated speed rpm : 1308
Check tolerance cm3/1000s. : +- 3.0	- Rated speed rpm : 1506 - Tolerance 1/min : +- 4
Spreed	- rack travel mm : 4.00
Tolerance	-
cm3/1000 strokes : 3.5	- Rated speed rpm : 1239

rack travel mm	: 12.10	+ rack travel mm : 2.25 + Tolerance mm : +- 0.15
Rated speed rpm	: 1309	1
Tolerance 1/min	: +- 4	Pressure hPa : 350
rack travel mm		rack travel mm : 1.10
		→ Tolerance mm : → 0.05
LOW IDLE		Start interlock
control lever		<u> </u>
position degree	ባ ልያ	FUEL DELIVERY CHARACTERISTICS
tolerance degree		I LOSE DEFINER CHARACTERIZITIES
toterance orgine	4.0	Aneroid pressure
Testing:		+ hPa : 1000
resemble		Rated speed rpm : 600
Rated speed rpm	. 750	
rack travel mm	4.70	tel. quantity cm3/1000 strokes : 97.0
rack travel mm Tolerance mm	+- 0.25	Tolerance
TARELMINE HIN		- cm3/1000 strokes : + 1.5
rack travel mm	2.00	Check tolerance
Rated speed rpm	785	+ cm3/1000s. : :- 4.0
Tolerance 1/min	: ← 25	Spreed 4.0
TATELMINE IVIIIII	• •	+ Tolerance
Rated speed rpm	: 100	+ cm3/1000 strokes : 5.0
Mateu Specu i piii	. 100	Check tolerance
CRT mm min.	· > 10 nn	- cm3/1000s. : 7.0
		1.0
		Aneroid pressure
TORQUE CONTROL		hPa : -
TOTAL CONTINUE		Rated speed rpm : 500
Rated speed rpm	• 1180	+ Del. quantity
ruck travel mm	13.45	- cm2/1000 strokes : 43.0
rack travel mm Tolerance mm	· + 0.05	+ Tolerance
TO CET GITCE TIME	0.05	+ cm3/1000 strokes : +- 1.0
Rated speed rpm	. 600	+ Check tolerance
rack travel mm	13 15	T cm3/1000s. : ← 3.0
Tolorance mm	· + 0.10	I (110003)
reference am		<del>-</del>
ANEROID/ALTITUDE		STARTING FUEL DELIVERY
COMPENSATOR TEST		+
		+ Rated speed rpm : 100
		+ Del. quantity
SETTING		+ cm3/1000 strokes : 105.0
		+ Tolerance
Rated speed rpm		+ cm3/1000 strokes : ← 5.0
Pressure hPa		+ Check tolerance
rack travel mm		+ cm3/1000s. : +- 8.0
Tolerance mm	: +- 0.05	†
Oneseuma hDa		†
Pressure hPa	500	Ť
Rated speed rpm		LOUTOUE
Tolerance mm	: ← 0.10	+ LOW IDLE
MEACHDEMENT		Rated speed rpm : 750
MEASUREMENT		+ Del. quantity
Rated speed rpm	. 500	- cm3/1000 strokes : 12.0
rated speed that	. 500	Tolerance
Pressure hPa	: 500	+ cm3/1000 strokes : +- 2.0
I I CODUIT III A	. 500	1 CIRCY TOUGH SCHOOLS . T C.U

J09

Check tolerance cm3/1000s. : + 4.5 Spreed Tolerance cm3/1000 strokes : 3.5 Check tolerance cm3/1000s. : 5.5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 22.01.97 : ISO 4113

Combination No. : 9 400 087 497

Injection pump

Pump designation : PES6P120A120RS3344 EP type number : 9 400 087 090

Governor

Governmen design. : RQV350...1100PA1207

Governer no. : 9 420 080 379

Cust. part No. : 3355976

Customer-spec. information

Customer : CUMMINS

Motor

: 6 CTAA - 290

Power KW

: 214.6

# TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C

Tolerance °C

: + 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : 3.0

Test nozzle holde

assembly

: 1 688 901 019

Opening pressure

bar

: 208.5

Tolerance bar

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

: 4.15 Prestroke mm

: **←** 0.05 Tolerance mm

Check

tolerance man : - 0.10

Rack travel in mm : 15.50

Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

Start of delivery blocking

\*NW after s.o.d. : 7.50 : **←** 0.10 Tolerance

Check

tolerance \*NW : +- 0.23

Barrel no.

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm: 15.55

Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 207.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance		+ Tolerance mm : +- 0.25
m3/1000s.	: ← 4.0	GUIDE SLEEVE POSITION
preed		T GOIDE SCEEVE POSITION
lerance		control lever
3/1000 strokes	: 5.0	<pre>position degree : - 1 Rated speed rpm : 1150</pre>
eck tolerance 3/1000s.	: 9.0	Rack travel in mm : 16.50
57 10003.		Tolerance mm : +- 1.30
ted speed rpm	: 325	FULL LOAD DELIVERY AT FULL LOAD STO
ck travel in m		Rated speed rpm : 1100
lerance mm l. quantity		+ Aneroid pressure + kPa : 1300
3/1000 strokes	: 44.0	Del. quantity cm3/1000 strokes : 207.0
3/1000 strokes	; <b>←</b> 3.0	† Tolerance
eck tolerance 3/1 <b>000</b> S.	: ← 6.0	<pre>+ cm3/1000 strokes : ← 1.0 + Check tolerance</pre>
reed Lerance		- cm3/1000s. : +- 4.0 - Spreed
3/1000 strokes	: 8.0	+ Tolerance
eck tolerance 3/1 <b>000</b> S.	: 12.0	+ cm3/1000 strokes : 5.0 + Check tolerance
SETTING OF I	NJECTION PUMP	cm3/10G0s. : 9.0
TTH GOVERNOR		CONTROL LEVER
JIDE SLEEVE TRAN	VEL	control lever
ated speed rpm uide sleeve	: 650	+ position degree : 63.0 + tolerance degree : ← 4.0
avel mm	: 5.55 : +- 0.25	control lever
lerance mm		<pre>position degree : 118.0 tolerance degree : + 4.0</pre>
ted speed rpm ide sleeve	: 1150	+ RATED SPEED
evel mm	: 8.40	rack travel mm : 14.50
lerance mm	: <b>←</b> 0.10	+ Rated speed rpm : 1150 + Tolerance 1/min : +- 5
ted speed rpm ide sleeve	: 350	rack travel mm : 4.00
avel mm	: 1.55	+ Rated speed rpm : 1360
lerance mm	: <del>+-</del> 0.25	Tolerance 1/min : + 15
ted speed rpm	: 500	rack travel mm : 0.50
ide sleeve avel mm	: 4.05	+ Tolerance mm : + 0.50 + Rated speed rpm : 1500
lerance mm	: + 0.25	
ted speed rpm ide sleeve	: 1400	Ī
avel mm	: 10.55	LOW IDLE

control lever position degree tolerance degree	: 69.0 : + 4.0
control lever position degree tolerance degree	: 14.0 : ← 4.C
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 325 : 6.80 : ← 0.10
Rated speed rpm	: 100
CRT mm min.	: > 9.50
Rated speed rpm	: 375
TORQUE CONTROL	-
Rated speed rpm rack travel mm Tolerance mm	: 1100 : 15.55 : + 0.05
Rated speed rpm rack travel mm Tolerance mm	: 700 : 15.95 : + 0.05
Rated speed rpm rack travel mm Tolerance mm	: 720 : 15.95 : ← 0.05
Rated speed rpm rack travel mm Tolerance mm	
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 1300 : 15.95 : + 0.05
Pressure hPa Rated speed rpm	: 500
MEASUREMENT	
Rated speed rpm	: 500

Pressure hPa rack travel mm Tolerance mm	: 800 : 2.65 : + 0.15
Pressure hPa	: 400
rack travel mm	: 1.00
Tolerance mm	: <b>←</b> 0.10
Start interlock	
Rated speed rpm	: > 100 : < 270
Rated speed rpm	: < 270
Check	
speed 1/min	: > 80
Check	00
speed 1/min	: < 290
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure	4700
hPa	: 1300 : 700
Rated speed rpm Del. quantity	: 700
cm3/1000 strokes	: 217.0
Tolerance	
cm3/1000 strokes	: +- 2.0
Check tolerance	
cm3/1000s.	: +- 5.0
Aneroid pressure	•
hPa Rated speed rpm	500
Del. quantity	. 300
cm3/1000 strokes	: 125.0
Tolerance	
cm3/1000 strokes	: + 1.0
Check tolerance	
cm3/1000s.	: +- 4.0
STARTING FUEL DEL	IVERY
Rated speed rpm	: 100
rack travel mm	: 20.00
Tolerance mm	: +- 1.00
Del. quantity	· 100 0
cm3/1000 strokes Tolerance	: 190.0
cm3/1000 strokes	: +- 10.0
Check tolerance	. 7 10.0
cm3/1000s.	: +- 14.0

LOW IDLE

Rated speed rpm	:	325
Del. quantity		
cm3/1000 strokes	•	44.C
Tolerance		
cm3/1000 strokes	: +-	3.0
Check tolerance		
cm3/1000s.	: +	6.0
Spreed		
Tolerance		0.0
cm3/1000 strokes	:	8.0
Check tolerance cm3/1000s.		42.0
CM3/10005.	:	12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 29.01.97 Test oil : ISO 4113 Edition

: 29.01.97

Combination No. : 多範 087 471

Injection pump

Pump designation : PE6P12OA32ORS3178 EP type number : 0 411 826 752

Governor

Governer design. : RQV250...950PA921-3

Governer no. : 0 421 813 786

Cust. part No. : 8125313-P02

Customer-spec. information

Customer : VOLVO-TRUCK
Motor : TD 122 F

Motor

: TD 122 F

Pover KW

: 261.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C

Tolerance \*C

: 40 : +- 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holde

assembly

: 1 688 901 019

Opening pressure

bar

: 208.5

Tolerance bar : +- 1.5

Test lines : 1 680 750 067

Outside diameter : 6.0

x inside diameter : 3.0 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 3.65
Tolerance mm : + 0.05

Check

tolerance me : +- 0.10

Rack travel in mm: 10.50

Toterance mm : +- 1.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240 Tolerance : +- 0.50

Ch:eck

tolerance \*NW : + 0.75

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.05 Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 230.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : +- 4.0

Spreed

Tolerance cm3/1000 strokes	: 5.0	control lever position degree : - 1
Check tolerance cm3/1000s.	: 9.0	Rated speed rpm : 1030
	+	Rack travel in mm : 16.50 Tolerance mm : + 1.30
Rated speed rpm	: 250	FULL LOAD DELIVERY AT FULL LOAD STO
Rack travel in mm	: 4.70	FOLE LOAD DELIVERY AT FULL LOAD STOR
Tolerance mm		Rated speed rpm : 700
Del. quantity	+	Aneroid pressure
cm3/1000 strokes	: 20.0	hPa : 900
Tolerance cm3/1000 strokes	30	Del. quantity cm3/1000 strokes : 230.0
Check tolerance	• = 3.0	Tolerance : 230.0
cm3/1000s.	: ← 6.0 Ţ	cm3/1000 strokes : +- 1.0
preed	+	Check tolerance
Tolerance	+	$cm3/1000s.$ : $\leftarrow$ 4.0
cm3/1000 strokes	: 8.0	Spreed
Check tolerance	t 13.0	Tolerance
cm3/1000s.	: 12.0	cm3/1000 strokes : 5.0
	<u>†</u>	Check toleranse cm3/1000s. : 9.0
GUIDE SLEEVE TRAVE		CONTROL LEVER
	+	control lever
Rated speed rpm	: 985	position degree : 64.0
guide sleeve travel mm	: 8.20	tolerance degree : +- 4.0
Colerance mm	÷ 0.10	control lever
	1	position degree : 120.0
Rated speed rpm	: 250	tolerance degree : + 4.0
guide sleeve	+	~
travel mm	1.20	RATED SPEED
Tolerance mm	: <b>←</b> 0.20 †	rack travel mm : 12.00
Rated speed rpm	: 450	Rated speed rpm : 985 Tolerance 1/min : +- 5
guide sleeve	20	TOTAL TAILE TAILED IN THE STATE OF THE STATE
travel mm	: 3.90	rack travel mm : 4.00
Tolerance mm	: ← 0.30 +	Rated speed rpm : 1075
	+	Tolerance 1/min : + 15
Rated speed rpm	: 700 +	
guide sleeve	. 450	rack travel mm : 0.50
ravel mm Tolerance mm	: 6.50 : + 0.20	Tolerance mm : + 0.50 Rated speed rpm : 1200
Office mil	. · · · · I	nated speed (bill : 1200
Rated speed rpm guide sleeve	: 1060	
travel mm	: 9.60	
Tolerance mm	: ← 0.20 +	LOW IDLE
	+	
GUIDE SLEEVE POSIT	TION	control lever
GUIDE SLEEVE POSIT	TION	control lever position degree : 64.0 tolerance degree : + 4.0

control lever pcs:tion degree tolerance degree	: 9.0 : ← 4.0
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 250 : 4.70 : + 0.10
Rated speed rpm	: 100
CKT ma min.	: > 6.20
Rated speed rpm	: 315
TORQUE CONTROL	
Rated speed rpm rack travel mm Tolerance mm	: 700 : 13.05 : +- 0.05
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 900 : 13.05 : ← 0.05
Pressure hPa Rated speed rpm	: - : 500
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa rack travel mm Tolerance mm	: 600 : 2.50 : ← 0.10
Pressure hPa rack travel mm Tolerance mm	: 120 : 0.35 : + 0.05
Start interlock	
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure hPa Rated speed rpm	: - : 700

Del. quantity
cm3/1000 strokes : 164.0
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000s. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 0.30
Del. quantity
cm3/1000 strokes : 290.0
Tolerance
cm3/1000 strokes : + 10.0
Check tolerance
cm3/1000s. : + 14.0

LOW IDLE

Rated speed rpm : 250
Del. quantity
cm3/1000 strokes : 20.0
Tolerance
cm3/1000 strokes : + 3.0
Check tolerance
cm3/1000s. : + 6.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000s. : 12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microsard(s) W430/...

Edition : 29.01.97 Test oil : ISO 4113

Combination No. : 9 400 087 499

Injection pump

Pump designation : PE6P110A720RS3289-1

EP type number : 0 411 816 795

Governor

Governer design. : RSV350...900P1A600

Governer no. : 9 420 082 331

Cust. part No. : 1371920

Customer—spec. information Customer : SCANIA Motor : DS1193A Power KW : 211.0

# TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration damper

(RoBo diaphragm) : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 104

Opening pressure

bar : 251.5 Tolerance bar : + 1.5 Test lines : 1 680 750 908

Outside diameter : 6.0

x inside diameter: 2.0

x length mm : 600

#### **REMARKS**

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.35
Tolerance mm : + 0.05

Check

tolerance mm : ÷ 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

Tolerance :  $\leftarrow$  0.30

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

## BASIC SETTING

Rated speed rpm : 850

Rack travel in mm: 12.35
Tolerance mm: + 0.05

Del. quantity

cm3/1000 strokes : 168.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : +- 4.0

Tolerance   Can		1 *-1
Tolerance	Spreed	
Tolerance cn3/1000 strokes : 4.0  Check tolerance cn3/1000s. : 7.5  COMITROL LEVER  control lever position degree : 41.0  Tolerance ma : + 0.10  Del. quarnity constrokes : + 4.0  Control lever position degree : + 4.0  Tolerance degree : + 4.0  Tolerance degree : + 4.0  Tolerance degree : + 4.0  Tolerance degree : + 4.0  Control lever position degree : 91.0  Tolerance degree : + 4.0  Tolerance degree : + 4.0  Tolerance degree : + 4.0  Tolerance degree : + 4.0  Tolerance degree : + 4.0  Tolerance degree : + 4.0  Tolerance degree : + 4.0  Tolerance degree : + 4.0  ASSEMBLY GOVERNOR SETTING  Rated speed rpm : 900  Tack travel mm : 11.30  Tolerance 1/min : + 4  Tack travel mm : 0.50  Tolerance 1/min : + 4.00  Rated speed rpm : 901  Tolerance mm : + 0.50	Sist CCG	
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### GOVERNOR   Rated speed rpm : 1000      Rated speed rpm : 901	(B) SETTING OF THIS CTION CINC	
Rated speed rpm : 901   rack travel mm : 11.30		
GUIDE SLEEVE POSITION    Control lever	WZTII GOVENION	Rated speed Tpill . 1000
GUIDE SLEEVE POSITION    Control lever		+
control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  Rated speed rpm : 900  Rated speed rpm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 2.75  Rated speed rpm : 902 rack travel mm : 0.50 Rated speed rpm : 902 rack travel mm : 11.30  Rated speed rpm : 931 Tolerance 1/min : + 4 rack travel mm : 4.00  Rated speed rpm : 931 Tolerance 1/min : + 4 rack travel mm : 4.00  Rated speed rpm : 931 Tolerance 1/min : + 4 rack travel mm : 4.00  Rated speed rpm : 931 Tolerance 1/min : + 4 rack travel mm : 4.00  Rated speed rpm : 931 Tolerance 1/min : + 4 rack travel mm : 4.00  Rated speed rpm : 931 Tolerance 1/min : + 4 rack travel mm : 4.00  Rated speed rpm : 931 Tolerance 1/min : + 4 rack travel mm : 4.00  Rated speed rpm : 931 Tolerance 1/min : + 4 rack travel mm : 4.00  Rated speed rpm : 931 Tolerance 1/min : + 4 rack travel mm : 4.00  Rated speed rpm : 931 Tolerance 1/min : + 4 rack travel mm : 11.30  Rated speed rpm : 932  Rated speed rpm : 903 rack travel mm : 11.30 Rated speed rpm : 932	CUITAR OLERUE DACTITAN	
control lever       Tolerance 1/min : ← 4         position degree : - 3       800         Rated speed rpm : 800       rack travel mm : 4.00         Rack travel in mm : 0.50       Tolerance mm : ← 0.50         Tolerance mm : ← 0.20       Rated speed rpm : 1000         governor spring pre-tension click setting x : 2.75       Rated speed rpm : 902 rack travel mm : 11.30         FULL LOAD DELIVERY AT FULL LOAD STOP       Rated speed rpm : 931 Tolerance 1/min : ← 4 rack travel mm : 4.00         Rated speed rpm : 850       rack travel mm : 0.50 Tolerance 1/min : ← 4 rack travel mm : 4.00         Rated speed rpm : 905 Del. quantity cm3/1000 strokes : 168.0       Rated speed rpm : 903 rack travel mm : 1000         Tolerance cm3/1000 strokes : ← 1.0       Rated speed rpm : 903 rack travel mm : 11.30         Rated speed rpm : 903 rack travel mm : 11.30       Rated speed rpm : 903 rack travel mm : 11.30         Rated speed rpm : 903 rack travel mm : 11.30       Rated speed rpm : 903 rack travel mm : 11.30	GOIDE STEENE MOSTLION	T rack travel mma : 11.50
control lever       Tolerance 1/min : ← 4         position degree : - 3       7 ack travel mm : 4.00         Rated speed rpm : 800       10.50         Rack travel in mm : 0.50       7 olerance mm : ← 0.50         Tolerance mm : ← 0.20       7 olerance mm : ← 0.50         Rated speed rpm : 902       8 ated speed rpm : 902         click setting x : 2.75       7 rack travel mm : 11.30         Rated speed rpm : 931       8 ated speed rpm : 4.00         Rated speed rpm : 931       8 ated speed rpm : 4.00         Rated speed rpm : 903       1000         Rated speed rpm : 9050		Rated speed rpm : 930
Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  Rated speed rpm : 0.50 Tolerance mm : + 0.50 Rated speed rpm : 1000  Rated speed rpm : 902 rack travel mm : 11.30  Rated speed rpm : 931 FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 850 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 168.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0  Spreed  Rated speed rpm : 903 Rated speed rpm : 903 Rated speed rpm : 903 Rated speed rpm : 903 Rated speed rpm : 903 Rated speed rpm : 903 Rated speed rpm : 903 Rated speed rpm : 903 Rated speed rpm : 903 Rated speed rpm : 903 Rated speed rpm : 903 Rated speed rpm : 903 Rated speed rpm : 903 Rated speed rpm : 903 Rated speed rpm : 903 Rated speed rpm : 903 Rated speed rpm : 903 Rated speed rpm : 903 Rated speed rpm : 903		+ Tolerance 1/min : + 4
Rack travel in mm : 0.50		+ rack travel mm : 4.00
Rack travel in mm : 0.50  Tolerance mm : + 0.20  Rated speed rpm : 1000  Rated speed rpm : 902  rack travel mm : 11.30  Rated speed rpm : 931  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 931  Tolerance 1/min : + 4  rack travel mm : 4.00  Rated speed rpm : 0.50  Aneroid pressure hPa : 1200  Del. quantity  cm3/1000 strokes : 168.0  Tolerance  cm3/1000 strokes : + 1.0  Check tolerance  cm3/1000s. : + 4.0  Spreed  Tolerance mm : 902  rack travel mm : 0.50  Tolerance mm : + 0.50  Rated speed rpm : 9.50  ated speed rpm : 903  Rated speed rpm : 903  Rated speed rpm : 903  Rated speed rpm : 903  Rated speed rpm : 932	Rated speed rpm : 800	t wash travel as 0.50
Tolerance mm : + 0.20  governor spring pre-tension   Rated speed rpm : 902   rack travel mm : 11.30  FULL LOAD DELIVERY AT FULL LOAD STOP   Rated speed rpm : 931   Tolerance 1/min : + 4   rack travel mm : 4.00   rack travel mm : 0.50   rack travel mm : 0.50   rack travel mm : 0.50   rack travel mm : + 0.50   Rated speed rpm : 1000   Rated speed rpm : 1000   Rated speed rpm : 1000   Rated speed rpm : 1000   Rated speed rpm : 1000   Rated speed rpm : 1000   Rated speed rpm : 11.30   Rated speed rpm : 903   rack travel mm : 11.30   rack travel mm : 11.30   Rated speed rpm : 932   Rated speed rpm : 933   Rated speed rpm : 933   Rated speed rpm : 933   Rated speed rpm : 933	Pack travel in mm · 0.50	
governor spring pre-tension click setting x : 2.75  Rated speed rpm : 902 rack travel mm : 11.30  Rated speed rpm : 931 Tolerance 1/min : + 4 rack travel mm : 4.00  Rated speed rpm : 850 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 168.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0  Spreed  Rated speed rpm : 902 rack travel mm : 0.50 Tolerance mm : + 0.50 Rated speed rpm : 1000  Rated speed rpm : 903 rack travel mm : 11.30  Rated speed rpm : 903 Rated speed rpm : 903 Rated speed rpm : 903 rack travel mm : 11.30		
Rated speed rpm : 902   rack travel mm : 11.30		- Nated Speed Tpill . 1000
Rated speed rpm : 931   Tolerance 1/min : 4   4   7   4   7   7   7   7   7   7	governor spring	+
Rated speed rpm : 931  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 850  Aneroid pressure  hPa : 1200  Del. quantity  cm3/1000 strokes : 168.0  Tolerance  cm3/1000 strokes : + 1.0  Check tolerance  cm3/1000s. : + 4.0  Spreed  Rated speed rpm : 931  Tolerance 1/min : + 4  rack travel mm : 0.50  Tolerance mm : + 0.50  Rated speed rpm : 1000  Rated speed rpm : 903  rack travel mm : 11.30  Rated speed rpm : 932		
FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 850  Aneroid pressure  hPa : 1200  Del. quantity  cm3/1000 strokes : 168.0  Tolerance  cm3/1000 strokes : + 1.0  Check tolerance  cm3/1000s. : + 4.0  Spreed  Tolerance 1/min : + 4  rack travel mm : 0.50  Tolerance mm : + 0.50  Rated speed rpm : 1000  Rated speed rpm : 903  rack travel mm : 11.30  Rated speed rpm : 932	click setting x : 2.75	+ rack travel mm : 11.30
FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 850  Aneroid pressure  hPa : 1200  Del. quantity  cm3/1000 strokes : 168.0  Tolerance  cm3/1000 strokes : + 1.0  Check tolerance  cm3/1000s. : + 4.0  Spreed  Tolerance 1/min : + 4  rack travel mm : 0.50  Tolerance mm : + 0.50  Rated speed rpm : 1000  Rated speed rpm : 903  rack travel mm : 11.30  Rated speed rpm : 932		I Pated speed rom . 031
Rated speed rpm : 850  Aneroid pressure  hPa : 1200	FULL LOAD DELIVERY AT FULL LOAD STOP	
Rated speed rpm : 850  Aneroid pressure  hPa : 1200		
hPa : 1200	Rated speed rpm : 850	+
Del. quantity cm3/1000 strokes : 168.0  Tolerance cm3/1000 strokes : +- 1.0  Check tolerance cm3/1000s. : +- 4.0  Spreed  Rated speed rpm : 1000  Rated speed rpm : 903 rack travel mm : 11.30  Rated speed rpm : 932		
cm3/1000 strokes : 168.0         Tolerance cm3/1000 strokes : + 1.0       Rated speed rpm : 903         Check tolerance cm3/1000s. : + 4.0       rack travel mm : 11.30         Spreed       Rated speed rpm : 932		
Tolerance cm3/1000 strokes : +- 1.0		+ kated speed rpm : 1000
cm3/1000 strokes : +- 1.0       + Rated speed rpm : 903         Check tolerance cm3/1000s. : +- 4.0       + rack travel mm : 11.30         Spreed       + Rated speed rpm : 932		I
Check tolerance rack travel mm : 11.30 rm3/1000s. : + 4.0 Rated speed rpm : 932		Rated speed rpm : 903
Spreed + Rated speed rpm : 932	Check tolerance	
		+
J19	Spreed	+ Rated speed rpm : 932
JIY	110	
	713	

Tolerance 1/min rack travel mm	÷ 4.00
rack travel mm	: 0.50
Tolerance mm	: ← 0.50
Rated speed rpm	: 1000
Rated speed rpm	: 904
rack travel mm	: 11.30
Rated speed rpm	: 933
Tolerance 1/min	: ← 4
rack travel mm	: 4.00
rack travel mm	: 0.50
Tolerance mm	: ← 0.50
Rated speed rpm	: 1000
Rated speed rpm	: 905
rack travel mm	: 11.30
Rated speed rpm	: 934
Tolerance 1/min	: 4
rack travel mm	: 4.00
rack travel mm	: 0.50
Tolerance mm	: ← 0.56
Rated speed rpm	: 1000
LOW IDLE	
control lever position degree tolerance degree	: 68.0 : ← 4.0
control lever position degree tolerance degree	: 18.0 : + 4.0
Setting point w/o	out bumper spring
Rated speed rpm	: 350
rack travel mm	: 5.50
Tolerance mm	: ← 0.10
Testing:	
Rated speed rpm	: 350
rack travel mm	: 6.00
Tolerance mm	: ← 0.10
rack travel mm	: 2.00
Rated speed rpm	: 395
Tolerance 1/min	: ← 30
Rated speed rpm	: 100

CRT mm min.	: > 19.00
TORQUE CONTROL	
Rated speed rpm rack travel mm Tolerance mm	: 850 : 12.35 : ← 0.05
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 1200 : 12.35 : ← 0.05
Pressure hPa Rated speed rpm rack travel mm Tolerance mm	: - : 500 : 9.95 : ← 0.15
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa rack travel mm Tolerance mm	: 200 : 11.60 : + 0.10
Pressure hPa rack travel mm Tolerance mm	: 140 : 10.75 : + 0.05
Start interlock	
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure	
hPa Rated speed rpm	500
Del. quantity cm3/1000 strokes	: 113.0
Tolerance cm3/1000 strokes	: <b>←</b> 1.0
Check tolerance cm3/1000s.	: <del></del> 4.0
STARTING FUEL DEL	IVERY
Rated speed rpm	: 100

rack travel mm	-		20.00
Tolerance mm	:	+-	1.00
Del. quantity			
	:		240.0
Tolerance			10.0
cm3/1000 strokes Check tolerance	:	+	10.0
cm3/1000s.	:	+-	14.0

# LOW IDLE

Rated speed rpm Del. quantity	:		350
cm3/1000 strokes Tolerance	:		15.5
cm3/1000 strokes Check tolerance	:	+-	2.5
cm3/1000s.	:	+-	5.0
Spreed Tolerance			
cm3/1000 strokes Check tolerance	:		4.5
cm3/1000s.	:		7.5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Fdition |

: 29.01.97

Test oil : ISO 4113

Combination No. : F 000 409 000

Injection pump

Pump designation : PES5P120A720LS7420

EP type number : F 000 400 200

Governor

Governer design. : RQV300...1100PA1293

Governer no. : F 000 420 100

Cust. part No. : 0270747702

Customer-spec. information Customer : MBB

Motor

: 0M449h LA

: 220.0 Power KW

# TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C

40

Tolerance °C

: + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

: 208.5

Tolerance bar :  $\leftarrow$  1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0 x length mm : 1000

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

4.70 Prestroke mm : +- 0.05 Tolerance mm

Check

: + 0.10 tolerance mm

Rack travel in mm : 21.00

Firing order : 1-3-5-4-2

: 0-72-144-216-288 : +- 0.50 Phasing

Phasing Tolerance

Check

tolerance  $^{\circ}NW$  : +- 0.75

# BASIC SETTING

Rated speed rpm : 650

Rack travel in mm : 13.65 Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 252.5

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : +- 4.0

Spreed

Tolerance

cm3/1000 strokes :

5.0

Check tolerance cm3/1000s. : 9.0	Rack travel in mm : 16.50 Tolerance mm : + 1.30
Rated speed rpm : 300	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm : 5.40 Tolerance mm : ← 0.10	Rated speed rpm : 650 Aneroid pressure
Del. quantity cm3/1900 strokes : 17.0	hPa : 1000 Del. quantity
Tolerance cm3/1000 strokes : + 3.0	+ cm3/1000 strokes : 252.5 + Tolerance
Check tolerance cm3/1000s. : +- 6.0	+ cm3/1000 strokes : + 1.0 + Check tolerance
Spreed Tolerance	cm3/1000S. : +- 4.0 Spreed
cm3/1000 strokes : 8.0 Check tolerance	Tolerance cm3/1000 strokes : 5.0
cm3/1000s. : 12.0	Check tolerance cm3/1000s. : 9.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	CONTROL LEVER
GUIDE SLEEVE TRAVEL	control lever
Rated speed rpm : 1100 guide sleeve	position degree : 52.0 tolerance degree : + 4.0
travel mm : 6.80	control lever
Tolerance mm : + 0.10	position degree : 117.0 tolerance degree : +- 4.0
Rated speed rpm : 300 guide sleeve	+ RATED SPEED
travel mm : 1.15	rack travel mm : 12.60
Tolerance mm : + 0.25	Rated speed rpm : 1145 Tolerance 1/min : + 5
Rated speed rpm : 700 guide sleeve	rack travel mm : 4.00
travel mm : 3.65 Tolerance mm : + 0.25	Rated speed rpm : 1265 Tolerance 1/min : +- 15
Rated speed rpm : 500 guide sleeve	rack travel mm : 0.50 Tolerance mm : +- 0.50 Rated speed rpm : 1360
travel mm : 2.75 Tolerance mm : + 0.25	+ Rated speed rpm : 1360
Rated speed rpm : 1300 guide sleeve	
travel mm : 9.25 Tolerance mm : + 0.25	LOW IDLE
GUIDE SLEEVE POSITION	control lever position degree : 83.0 tolerance degree : +- 4.0
control lever position degree : - 1 Rated speed rpm : 1250	control lever position degree : 17.0 tolerance degree : +- 4.0

# Testing:

Rated speed rpm	:	300
rack travel mm	:	5.40
Tolerance mm	: +	- 0.10

Rated speed rpm : 100

CRT mm min. : > 8.00

Rated speed rpm : 350

# TORQUE CONTROL

Rated speed rpm	:	650
rack travel mm	:	13.65
Tolerance mm	; +	- 0.05

Rated speed rpm : 1100 rack travel mm : 13.65 Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm	:	500
Pressure hPa	:	1000
rack travel mm	:	13.65
Tolerance mm	:	<b>←</b> 0.05

Pressure hPa : Rated speed rpm : 500

## **MEASUREMENT**

Rated speed rpm : 500

Pressure hPa : 600 rack travel mm : 2.00 Tolerance mm : + 0.10

Pressure hPa : 400 rack travel mm : 0.75 Tolerance mm : +- 0.05

## Start interlock

Rated speed rpm : > 100 Rated speed rpm : < 220

Check speed 1/min :> 80 Check

speed 1/min : < 240

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1000 Rated speed rpm : 1100 Del. quantity cm3/1000 strokes : 246.0

Tolerance

cm3/1000 strckes : - 2.0 Check tolerance cm3/1000s. : + 5.0

Aneroid pressure

hPa : Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 143.0

Tolerance

cm3/1000 strokes : +- 1.0 Check tolerance

cm3/1000s. : +- 4.0 Spreed

Tolerance

cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0

# STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 235.0
Tolerance
cm3/1000 strokes : + 10.0
Check tolerance
cm3/1000s. : + 14.0

#### LOW IDLE

Rated speed rpm : 300
Del. quantity
cm3/1000 strokes : 17.0
Tolerance
cm3/1000 strokes : +- 3.0
Check tolerance
cm3/1000s. : +- 6.0
Spreed

Spreed Tolerance

cm3/1000 strokes : 8.0 Check tolerance

cm3/1000s. : 12.0

#### Note remarks

Refer to Service info for test and adjustment instructions. See microcard(s) W400/...

: 29.01.97 Edition Test oil : ISO 4113

Combination No. : F 000 409 001

Injection pump

Pump designation : PESSP120A720LS7420

EF type number : F 000 400 200

Governor

Governer design. : RQV300...1100PA1294

Governer no. : F 000 420 101

Cust. part No. : 0270747602

Customer-spec, information

Customer : MBB Motor : 0M449h LA : 185.0 Power KW

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm 4.70 : + 0.05 Tolerance mm

Check

: **←** 0.10 tolerance mm

Rack travel in mm : 21.00

Firing order : 1-3-5-4-2

: 0-72-144-216-288 Phesing

Tolerance : +- 0.50

Check

tolerance \*NW : + 0.75

BASIC SETTING

Rated speed rpm : 650

Rack travel in mm : 12.85 Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 225.5

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance

: +- 4.0 cm3/1000s.

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance cm3/1000s. :	9.0	Rack travel in mm : 16.50 Tolerance mm : +- 1.30
Rated speed rpm :	: 300	FULL LOAD DELIVERY AT FULL LOAD STOP
	5.30 + 0.10	Rated speed rpm : 650 Aneroid pressure
Del. quantity cm3/1000 strokes :	17.0	hPa : 1000 Del. quantity
Tolerance cm3/1000 strokes :	± + 3.0 ‡	cm3/1000 strokes : 225.5 Tolerance
	+ 6.0	cm3/1000 strokes : + 1.0 Check tolerance
Spreed Tolerance	• ‡	cm3/1909s. : +- 4.0 Spreed
cm3/1000 strokes : Check tolerance	+	Tolerance cm3/1000 strokes : 5.0
cm3/1000s.	12.0	Check tolerance cm3/1000s. : 9.0
(B) SETTING OF INJE	ECTION PUMP	CONTROL LEVER
GUIDE SLEEVE TRAVEL		control lever
Rated speed rpm : guide sleeve	1100	position degree : 52.0 tolerance degree : +- 4.0
travel mm : Tolerance mm :	# 8.20 + 0.10	control lever position degree : 117.0
Rated speed rpm : guide sleeve	300	tolerance degree : +- 4.0  RATED SPEED
travel mm : Tolerance mm :	2.05 + 0.25	rack travel mm : 11.10 Rated speed rpm : 1160
Rated speed rpm :	700	Tolerance 1/min : + 5
guide steeve travel mm	5.35	rack travel mm : 4.00 Rated speed rpm : 1260
-	+ 0.25	Rated speed rpm : 1260 Tolerance 1/min : ← 15
Rated speed rpm : guide sleeve	500	rack travel mm : 0.50 Tolerance mm : ← 0.50
travel mm :	4.50 + 0.25	Rated speed rpm : 1360
Rated speed rpm : guide sleeve	1300	
travel mm :	10.25 + 0.25	LOW IDLE
GUIDE SLEEVE POSITI	ON	control lever position degree : 83.0 tolerance degree : + 4.0
control lever position degree : Rated speed rpm :	- 1 1250	<pre>control lever position degree : 18.0 tolerance degree : +- 4.0</pre>

T	e	S	t	ì	ng	:

Rated speed rpm : 300 rack travel mm : 5.30 : **←** 0.10 Tolerance mm

Rated speed rpm : 100

CRT mm min. : > 10.00

Rated speed rpm : 330

# TORQUE CONTROL

Rated speed rpm : 650 rack travel mm : 12.85 : +- 0.05 Tolerance mm

Rated speed rpm : 1100 rack travel mm : 12.15
Tolerance mm : + 0.05

Rated speed rpm : 900 rack travel mm : 12.85 : + 0.05 Tolerance mm

Rated speed rpm : 1050 rack travel mm : 12.15 Tolerance mm : + 0.05

## ANEROID/ALTITUDE COMPENSATOR TEST

# SETTING

Rated speed rpm : 500 Pressure hPa : 1000 rack travel mm : 12.85 Tolerance mm : ← 0.05

Pressure hPa Rated speed rpm : 500

#### **MEASUREMENT**

Rated speed rpm : 500

Pressure hPa : 570 rack travel mm : 1.30 : **←** 0.10 Tolerance mm

Pressure hPa : 430 rack trave: mm : 0.45 Tolerance ₩ : ← 0.05

Start interlock

Rated speed rpm : > Rated speed rpm : < 100 220

Check

speed 1/min :> 80 Check

speed 1/min : < 240

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

1000 Rated speed rpm : 1100

Del. quantity

cm3/1000 strokes : 202.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  2.0 Check tolerance

cm3/1000s. : +- 5.0

Aneroid pressure

Rated speed rpm : 500 Del. quantity

cm3/1000 strokes : 150.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance cm3/1000s.

: +-4.0 Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

## STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity

cm3/1000 strokes : 235.0

Tolerance

cm3/1000 strokes : + 10.0

Check tolerance

cm3/1000s. : + 14.0

# LOW IDLE

Rated speed rpm : 300

Del. quantity

cm3/1000 strokes : 17.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  3.0

Check tolerance cm3/1000s. : +- 6.0

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance cm3/1000s. : 12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 29.01.97 Edition Test oil : ISO 4113

Combination No. : F 000 409 100

Injection pump

Pump designation : PES5P120A720LS7420 EP type number : F 000 400 200

Governor

Governer design. : RQV300...1100PA1302

Governer no. : F 000 420 104

Cust. part No. : 0270748902

Customer-spec. information

Customer : MBB

: 0M449h LA Motor Power KW

: 220.0

#### TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. "C 4(i Tolerance °C : <del>+-</del> 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

208.5 bar Tolerance bar : ← 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : ← 1.0

: 4.70 Prestroke mm : **←** 0.05 Tolerance mm

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 21.00

Firing order : 1- 3- 5- 4- 2

: 0-72-144-216-288 Phasing

Tolerance : **←** 0.50

Check

tolerance \*NW : +- 0.75

BASIC SETTING

Rated speed rpm : 650

Rack travel in mm: 13.65

: + 0.05 Tolerance mm

Del. quantity cm3/1000 strokes : 252.5

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance cm3/1000s. : **←** 4.0

Spreed

Tolerance

cm3/1000 strokes 5.0

Check tolerance cm3/1000s. : 9.0	Rack travel in mm : 16.50 Tolerance mm : + 1.30
Rated speed rpm : 300	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm: 5.40 Tolerance mm : + 0.10	Rated speed rpm : 650 Aneroid pressure
Del. quantity cm3/1000 strokes : 17.0	hPa : 1000 Del. quantity
Tolerance cm3/1000 strokes : + 3.0	cm3/1000 strokes : 252.5 Tolerance
Check tolerance $cm3/1000s$ . $: \leftarrow 6.0$	cm3/1000 strokes : +- 1.0 Check tolerance
Spreed Tolerance	cm3/1000s. : + 4.0
cm3/1000 strokes : 8.0 Check tolerance	Tolerance cm3/1000 strokes : 5.0
cm3/1000s. : 12.0	theck tolerance cm3/1000s. : 9.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	CONTROL LEVER
GUIDE SLEEVE TRAVEL	control lever
AND ARREST INCIDE	+ position degree : 52.0
Rated speed rpm : 1100 guide sleeve	tolerance degree : + 4.0
travel mm : 8.20	+ control lever
Tolerance mm : ← 0.10	position degree : 117.0 tolerance degree : + 4.0
Rated speed rpm : 300 guide sleeve	+ RATED SPEED
travel mm : 2.05	rack travel mm : 12.60
Tolerance mm : ← 0.25	+ Rated speed rpm : 1145 + Tolerance 1/min : + 5
Rated speed rom : 700	+
<pre>guide sleeve travel mm : 5.35</pre>	+ rack travel mm : 4.00 + Rated speed rpm : 1270
Tolerance mm : + 0.25	Tolerance 1/min : +- 15
Rated speed rpm : 500 guide sleeve	rack travel mm : 0.50 Tolerance mm : + 0.50
travel mm : 4.50	Tolerance mm : + 0.50 Rated speed rpm : 1360
Tolerance mm : ← 0.25	1
Rated speed rpm : 1300 guide sleeve	
travel mm : 10.25 Tolerance mm : +- 0.25	LOW IDLE
GUIDE SLEEVE POSITION	control lever position degree : 83.0 tolerance degree : + 4.0
control lever position degree : - 1 Rated speed rpm : 1250	control lever position degree : 17.0 tolerance degree : + 4.0

Test	ing:	•
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Rated speed rpm : 300 rack travel mm : 5.40 : + 0.10 Tolerance mm

Rated speed rpm : 100

CRT mm min. : > 10.00

Rated speed rpm : 350

#### TORQUE CONTROL

Rated speed rpm : 650 rack travel mm 13.65 Tolerance ma : **←** 0.05

Rated speed rpm : 1100 rack travel mm : 13.65 Tolerance mm :  $\leftarrow$  0.05

ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500 Pressure hPa : 1000 rack travel mm : 13.65 : **←** 0.05 Tolerance mm

Pressure hPa Rated speed rpm : 500

**MEASUREMENT** 

Rated speed rpm : 500

600 Pressure hPa : 2.00 rack travel mm : **←** 0.10 Tolerance mm

Pressure hPa : 400 rack travel mm : 0.75 : +- 0.05 Tolerance mm

Start interlock

100 Rated speed rpm : > Rated speed rpm : < 220

Check

: > 80 speed 1/min

Check

speed 1/min : < 240 FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa 1000 Rated speed rpm : 1100 Del. quantity

cm3/1000 strokes : 246.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  2.0

Check tolerance cm3/1000s. : +- 5.0

Aneroid pressure

Rated speed rpm : 500 Del. quantity

cm3/1000 strokes : 143.0 Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance cm3/1000s. : :-4.0

Spreed Tolerance

cm3/1000 strokes : 5.0

Check tolerance cm3/1000s.

9.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity

235.0 cm3/1000 strokes :

Tolerance

cm3/1000 strokes :  $\leftarrow$  10.0

Check tolerance

cm3/1000s.: +- 14.0

#### LOW IDLE

Rated speed rpm : 300 Del. quantity

cm3/1000 strokes : 17.0 Tolerance

cm3/1000 strokes :  $\leftarrow$  3.0 Check tolerance

cm3/1000s. : <del>←</del> 6.0 Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

: 12.0 cm3/1000s.

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 29.01.97 Edition Test oil : ISO 4113

Combination No. : F 000 409 101

Injection pump

Pump designation : PES5P120A720LS7420 EP type number : F 000 400 200

Governor

Governer design. : RGV500...1100PA1303

Governer no. : F 000 420 105

Cust. part No. : 0270748802

Customer-spec. information

Customer : MB8

Motor : OM449h LA Power KW : 185.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C : 40 : + 2.0 Tolerance °C

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

: 208.5 Tolerance bar : +- 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.70 : + 0.05 Tolerance mm

Check

: + 0.10 tolerance mm

Rack travel in mm : 21.00

Firing order : 1- 3- 5- 4- 2

: 0-72-144-216-288 : ← 0.50 Phasing

Tolerance

Check

tolerance \*NW : +- 0.75

BASIC SETTING

Rated speed rpm : 650

Rack travel in mm : 12.85 Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 225.5

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance : +- 4.0 cm3/1000s.

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance cm3/1000s. : 9.0	Rack travel in mm : 16.50 Tolerance mm : + 1.30
Rated speed rpm : 300	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm : 5.30 Tolerance mm : +- 0.10 Del. quantity	Rated speed rpm : 650 Aneroid pressure hPa : 1000
cm3/1000 strokes : 17.0 Tolerance	+ hPa : 1000 + Del. quantity + cm3/1000 strokes : 225.5
cm3/1000 strokes : +- 3.0 Check tolerance	Tolerance : + 1.0
cm3/1000S. : +- 6.0 Spreed	Check tolerance cm3/1000s. : +- 4.0
Tolerance cm3/1000 strokes : 8.0	Spreed Tolerance
Check tolerance cm3/1000s. : 12.0	cm3/1000 strokes : 5.0
TE.U	- theck toterance - cm3/1000s. : 9.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	CONTROL LEVER
GUIDE SLEEVE TRAVEL	control lever position degree : 52.0
Rated speed rpm : 1100 guide sleeve	tolerance degree : +- 4.0
travel mm : 6.80 Tolerance mm : + 0.10	control lever position degree : 117.0 tolerance degree : + 4.0
Rated speed rpm : 300 guide sleeve	RATED SPEED
travel mm : 1.15 Tolerance mm : + 0.25	rack travel mm : 11.10 Rated speed rpm : 1160 Tolerance 1/min : +- 5
Rated speed rpm : 700 guide sleeve	rack travel mm : 4.00
travel mm : 3.65 Tolerance mm : +- 0.25	Rated speed rpm: : 1260 Tolerance 1/min : +- 15
Rated speed rpm : 500 guide sleeve travel mm : 2.75	rack travel mm : 0.50 Tolerance mm : + 0.50 Rated speed rpm : 1360
Tolerance mm : + 0.25  Rated speed rpm : 1300	
guide sleeve : 9.25	LOW IDLE
Tolerance mm : + 0.25	‡
GUIDE SLEEVE POSITION	+ control lever + position degree : 83.0 + tolerance degree : + 4.0
control lever position degree : - 1 Rated speed rpm : 1250	control lever position degree : 18.0 tolerance degree : +- 4.0

Test	ing:
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300 Rated speed rom : rack travel mm 5.30 : +- 0.10 Tolerance mm

Rated speed rpm : 100

CRT ma min. :> 8.00

380 Rated speed rpm :

#### TORQUE CONTROL

Rated speed rpm 650 12.85 rack travel mm : + 0.05Tolerance mm

Rated speed rpm : 1100 rack travel mm : 12.15 : **←** 0.05 Tolerance mm

: 900 Rated speed rpm 12.85 rack travel mm : **←** 0.05 Tolerance mm

Rated speed rpm : 1050 rack travel mm : 12.1 12.15 Tolerance mm : +- C.G5

### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500 1000 Pressure hPa 12.85 rack travel mm : +- 0.05 Tolerance mm

Pressure hPa Rated speed rpm : 500

#### **MEASUREMENT**

Rated speed rpm 500

570 Pressure hPa 1.30 rack travel mm Tolerance mm : + 0.10

430 Pressure hPa 0.45 rack travel mm : +- 0.05 Tolerance mm

### Start interlock

Rated speed rpm : < 220

100

Rated speed rpm :>

Check

speed 1/min :> 80 Check

speed 1/min 240 : <

### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa 1000 Rated speed rpm: : 1100 Del. quantity

cm3/1000 strokes : 202.0 Tolerance

cm3/1000 strokes : +- 2.0

Check tolerance cm3/1000s. : ← 5.0

Aneroid pressure

Rated speed rpm : 500 Del. quantity

cm3/1000 strokes : 150.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0 Check tolerance c.n3/1000s. 4.0

Spreed

Tolerance cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. 9.0

## STARTING FUEL DELIVERY

Rated speed rpm : 100 Del. quantity cm3/1000 strokes : 235.0 Tolerance cm3/1000 strokes :  $\leftarrow$  10.0

Check tolerance

cm3/1000s. : +- 14.0

### LOW IDLE

Rated speed rpm : 300 Del. quantity

cm3/1000 strokes : 17.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  3.0

Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : ISO 4113 Test oil

Combination No. : 0 400 864 109

injection bumb

Pump designation : PES4A95D410/3RS2789

EP type number : 0 410 894 995

Governor

Covernor design. : RSV325...1250A50917L

Governer no. : 0 420 232 639

Cust. part No. : 0423 2332 KY

Customer-spec, information Customer : KHD-DMI : F4L912/913 Motor

: 59.0 Power KW

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : +- 2.0 Tolerance °C

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

: 0 681 343 009 assembly

Opening pressure

: 173.5 Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0 x length mm :

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar :  $\leftarrow$  1.0

Prestroke mm : 3.00 : **←** 0.05 Tolerance mm

Check

tolerance mm : **←** 0.10

Rack travel in mm : 10.50 Tolerance mm :  $\leftarrow$  1.50

Firing order : 1-3-4-2

Phasina : 0-90-180-270

Tolerance : +- 0.50 Check

tolerance \*MW : + 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.35
Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 76.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance cm3/1000s. : +- 3.0

Spreed

Tolerance

cm3/1000 strokes : 3.5

		•
Check tolerance		CONTROL I PUED
cm3/1000s.	: 8.0	- CONTROL LEVER
		- - control lever
	1	position degree : 102.0
Rated speed rpm	. 325	tolerance degree : + 4.0
		- Total degree 4.0
Ruck travel in mm	: 8.50	- RATED SPEED
Tolerance mm	: ← 0.10 }	- rack travel mm : 10.35
Del. quantity	+	- Rated speed rpm : 1295
cm3/1000 strokes	: 11.5	- Tolerance 1/min : +- 5
Tolerance	+	•
:n3/1000 strokes	: <b>←</b> 2.0 +	- rack travel mm : 4.00
Check tolerance	+	- Rated speed rpm : 1340
m3/1000s.	: +- 4.5	- Tolerance 1/min : + 15
Spreed	+	•
Tolerance	+	- rack travel mm : 0.85
m3/1000 strokes	: 5.5	Tolerance mm : ← 0.55
heck tolerance	+	- Rated speed rpm : 1510
m3/1000s.	: 9.0	•
	+	- rack travel mm : 4.00
<b>10. </b>	+	- Rated speed rpm : 1360
B) SETTING OF IN ITH GOVERNOR	JECTION PUMP	•
	+	-
		- LOW IDLE
SUIDE SLEEVE POSI	TION	
	4	•
	+	- control lever
ontrol lever	+	position degree : 69.0
position degree	: FREE	tolerance degree : + 4.0
ated speed rpm	: 800	•
	+	<ul> <li>Setting point w/out bumper spring</li> </ul>
ack travel in mm		•
olerance mm	: <b>←</b> 0.20 †	- Rated speed rpm : 325
_	+	- rack travel mm : 8.00
povernor_spring	+	Tolerance mm : + 0.10
re-tension	+	•
lick setting x	: 3.00	· Testing:
		Pated speed see 725
THE LOAD DELTHER	Y AT FULL LOAD STOP	- Rated speed rpm : 325 - rack travel mm : 8.50
OFF FOWN NEFTACK	AT FULL LUMD STOP	- rack travel mm : 8.50 - Tolerance mm : +- 0.10
ated speed rpm	: 1250	· Oterance mm : T- 0.10
neroid pressure	· 1230	rack travel mm : 2.00
inerota pressure IPa	. <u> </u>	Rated speed rpm : 475
el. quantity	· I	· Tolerance 1/min : +- 30
m3/1000 strokes	: 76.0	· ioterance mini : - 30
olerance	· '0.5	- Rated speed rpm : 100
m3/1000 strokes	: <del>+</del> 1.0	naceu speeu (jiii . (UU
heck tolerance	· · · · · · · · · · · · · · · · · · ·	- CRT mm min. :> 19,50
m3/1000s.	: ← 3.0 I	- Grandininini : / 17,00
preed	1.0	
preed Olerance	1	TORQUE CONTROL
m3/1000 strokes	: 3.5	I ONGOE CONTROL
heck tolerance	• 3.3	- Rated speed rpm : 1250
m3/1000s.	: 8.0	rack travel mm : 12.35
AND/ IUUUS.	: 8.0	
	+	· Tolerance mm : + 0.05

#### Start interlock

## STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 17.00
Tolerance mm : + 0.75
Del. quantity
cm3/1000 strokes : 90.0
Tolerance
cm3/1000 strokes : + 7.5
Check tolerance
cm3/1000s. : + 10.0

### LOW IDLE

Rated speed rpm : 325
Del. quantity
cm3/1000 strokes : 11.5
Tolerance
cm3/1000 strokes : + 2.0
Check tolerance
cm3/1000s. : + 4.5
Spreed
Tolerance
cm3/1000 strokes : 5.5
Check tolerance
cm3/1000 strokes : 9.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 31.01.97 : ISO 4113

Combination No. : 0 400 846 449

Injection pump

Pump designation : PES6A95D420LS2595 EP type number : 0 410 896 930

Governor

Governer design. : RQ200/1050AB1094 Governer no. : 0 420 201 623

Cust. part No. :

Customer-spec. information

Customer : RABA Motor : D2156 HM6U Motor

Power KW : 141.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40 Tolerance °C : + 2.0 temp. °C 40

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde ssembly : 0 681 343 009

Opening pressure

: 173.5 bar Tolerance bar : +- 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : ← 1.0

Prestroke mm : 2.05 Tolerance mm : + 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 10.50 Tolerance mm : ← 1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing Tolerance

: +- 0.50

Check

tolerance \*NW : +- 0.75

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm: 10.65

Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 103.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance

cm3/1000s. :  $\leftarrow$  3.0

Spreed

Tolerance	+	rack travel mm	: \$.60
cm3/1000 strokes	: 3.5	Rated speed rpm	
	1	Tolerance 1/min	
Check tolerance		. occi di loc i / lii / /	
cm3/1000s.	: 6.0	rack travel mm	: 4.00
CM37 10003.	· 0.0		
		Rated speed rpm	: 1140
	†	Tolerance 1/min	: <del></del>
	t		
Rated speed rpm	: 300 +	reck travel ma	: 0.50
	+	Tolerance mm	
Rack travel in mm		Rated speed rpm	: 1225
Tolerance mm	: +- 0.10 +		
Del. quantity	+		
cm3/1000 strokes	: 13.0		
Tolerance	1	<del></del>	
cm3/1900 strokes	· + 20 1	LOW IDLE	
Check tolerance	· · · · I	COM IDEC	
cm3/1000s.	: ← 4.5 I	Tootings	
	· · · · · · · · · · · · · · · · · · ·	Testing:	
Spreed	†	0.4.1	70.0 B
Tolerance	<b>-</b>	Rated speed rpm	: 260
cm3/1000 strokes	: 3.5	rack travel mm	: 6.00
Check tolerance	_ +	Tolerance mm	: ← 0.10
cm3/1000s.	: 5.5		
	+	rack travel mm	: 2.00
	+	Rated speed rom	: 290
(B) SETTING OF INJ	ECTION PUMP	Tolerance 1/min	: +- 20
WITH GOVERNOR			
	1	Rated speed rpm	: 100
	1	nated speed ipin	. 100
		CRT mm min.	: > 7.50
GUIDE SLEEVE POSIT	TON	CRI mm miri.	: > 7.50
GOIDE STEENE LOSI!	104	Dada d and ad ann	. 750
	†	Rated speed rpm	: 350
	†		
control lever	t	CRT mm max.	: < 1.00
position degree		CRT mm max.	: < 1.00
			: < 1.00
position degree		TORQUE CONTROL	: < 1.00
position degree	: 500		: < 1.00
position degree Rated speed rpm Rack travel in mm	: 500	TORQUE CONTROL	intelliga rustili gettili ettimarakanya anyak ettimi ettimi, yilay, yilay aylay
position degree Rated speed rpm Rack travel in mm	: 500	TORQUE CONTROL Rated speed rpm	: 1050
position degree Rated speed rpm Rack travel in mm	: 500	TORQUE CONTROL  Rated speed rpm rack travel mm	: 1050 : 10.65
position degree Rated Speed rpm Rack travel in mm Tolerance mm	: 500 : 20.00 : + 0.80	TORQUE CONTROL Rated speed rpm	: 1050
position degree Rated speed rpm Rack travel in mm	: 500 : 20.00 : + 0.80	TORQUE CONTROL  Rated speed rpm rack travel mm Tolerance mm	: 1050 : 10.65 : + 0.05
position degree Rated Speed rpm Rack travel in mm Tolerance mm  FULL LOAD DELIVERY	: 500 : 20.00 : + 0.80	TORQUE CONTROL  Rated speed rpm rack travel mm Tolerance mm	: 1050 : 10.65 : + 0.05
position degree Rated Speed rpm  Rack travel in mm Tolerance mm  FULL LOAD DELIVERY Rated speed rpm	: 500 : 20.00 : + 0.80	TORQUE CONTROL  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm	: 1050 : 10.65 : + 0.05 : 500 : 11.20
position degree Rated Speed rpm  Rack travel in mm Tolerance mm  FULL LOAD DELIVERY Rated speed rpm Aneroid pressure	: 500 : 20.00 : + 0.80	TORQUE CONTROL  Rated speed rpm rack travel mm Tolerance mm	: 1050 : 10.65 : + 0.05 : 500 : 11.20
position degree Rated Speed rpm  Rack travel in mm Tolerance mm  FULL LOAD DELIVERY Rated speed rpm Aneroid pressure hPa	: 500 : 20.00 : + 0.80	TORQUE CONTROL  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm	: 1050 : 10.65 : ← 0.05 : 500 : 11.20 : ← 0.10
position gegree Rated Speed rpm  Rack travel in mm Tolerance mm  FULL LOAD DELIVERY Rated speed rpm Aneroid pressure hPa Del. quantity	: 500 : 20.00 : + 0.80 AT FULL LOAD STOP : 1050	TORQUE CONTROL  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm	: 1050 : 10.65 : ← 0.05 : 500 : 11.20 : ← 0.10 : 740
position gegree Rated Speed rpm  Rack travel in mm Tolerance mm  FULL LOAD DELIVERY  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes	: 500 : 20.00 : + 0.80 AT FULL LOAD STOP : 1050	TORQUE CONTROL  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm	: 1050 : 10.65 : ← 0.05 : 500 : 11.20 : ← 0.10 : 740 : 11.20
position pegree Rated Speed rpm  Rack travel in mm Tolerance mm  FULL LOAD DELIVERY  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance	: 500 : 20.00 : + 0.80 AT FULL LOAD STOP : 1050 : - : 103.0	TORQUE CONTROL  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm	: 1050 : 10.65 : ← 0.05 : 500 : 11.20 : ← 0.10 : 740
position pegree Rated Speed rpm  Rack travel in mm Tolerance mm  FULL LOAD DELIVERY  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 500 : 20.00 : + 0.80 AT FULL LOAD STOP : 1050 : - : 103.0	TORQUE CONTROL  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm	: 1050 : 10.65 : ← 0.05 : 500 : 11.20 : ← 0.10 : 740 : 11.20 : ← 0.10
position pagee Rated Speed rpm  Rack travel in mm Tolerance mm  FULL LOAD DELIVERY  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	: 500 : 20.00 : + 0.80 AT FULL LOAD STOP : 1050 : - : 103.0 : + 1.0	TORQUE CONTROL  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm	: 1050 : 10.65 : + 0.05 : 500 : 11.20 : + 0.10 : 740 : 11.20 : + 0.10 : 800
position pegree Rated Speed rpm  Rack travel in mm Tolerance mm  FULL LOAD DELIVERY  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 500 : 20.00 : + 0.80 AT FULL LOAD STOP : 1050 : - : 103.0	TORQUE CONTROL  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm	: 1050 : 10.65 : ← 0.05 : 500 : 11.20 : ← 0.10 : 740 : 11.20 : ← 0.10
position pagee Rated Speed rpm  Rack travel in mm Tolerance mm  FULL LOAD DELIVERY  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	: 500 : 20.00 : + 0.80 AT FULL LOAD STOP : 1050 : - : 103.0 : + 1.0	TORQUE CONTROL  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm	: 1050 : 10.65 : + 0.05 : 500 : 11.20 : + 0.10 : 740 : 11.20 : + 0.10 : 800
position degree Rated Speed rpm  Rack travel in mm Tolerance mm  FULL LOAD DELIVERY  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed	: 500 : 20.00 : + 0.80 AT FULL LOAD STOP : 1050 : - : 103.0 : + 1.0	TORQUE CONTROL  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm	: 1050 : 10.65 : + 0.05 : 500 : 11.20 : + 0.10 : 740 : 11.20 : + 0.10 : 800 : 11.00
position degree Rated Speed rpm  Rack travel in mm Tolerance mm  FULL LOAD DELIVERY  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance	: 500 : 20.00 : + 0.80 AT FULL LOAD STOP : 1050 : - : 103.0 : + 1.0 : + 3.0	TORQUE CONTROL  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm	: 1050 : 10.65 : + 0.05 : 500 : 11.20 : + 0.10 : 740 : 11.20 : + 0.10 : 800 : 11.00
position degree Rated Speed rpm  Rack travel in mm Tolerance mm  FULL LOAD DELIVERY  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes	: 500 : 20.00 : + 0.80 AT FULL LOAD STOP : 1050 : - : 103.0 : + 1.0 : + 3.0	TORQUE CONTROL  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm	: 1050 : 10.65 : + 0.05 : 500 : 11.20 : + 0.10 : 740 : 11.20 : + 0.10 : 800 : 11.00
position gegree Rated Speed rpm  Rack travel in mm Tolerance mm  FULL LOAD DELIVERY  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance	: 500 : 20.00 : + 0.80 AT FULL LOAD STOP : 1050 : - : 103.0 : + 1.0 : + 3.0 : 3.5	TORQUE CONTROL  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm	: 1050 : 10.65 : + 0.05 : 500 : 11.20 : + 0.10 : 740 : 11.20 : + 0.10 : 800 : 11.00
position degree Rated Speed rpm  Rack travel in mm Tolerance mm  FULL LOAD DELIVERY  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes	: 500 : 20.00 : + 0.80 AT FULL LOAD STOP : 1050 : - : 103.0 : + 1.0 : + 3.0	TORQUE CONTROL  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm	: 1050 : 10.65 : ← 0.05 : 500 : 11.20 : ← 0.10 : 740 : 11.20 : ← 0.10 : 800 : 11.00 : ← 0.10
position gegree Rated Speed rpm  Rack travel in mm Tolerance mm  FULL LOAD DELIVERY  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance	: 500 : 20.00 : + 0.80 AT FULL LOAD STOP : 1050 : - : 103.0 : + 1.0 : + 3.0 : 3.5	TORQUE CONTROL  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm  Start interlock Rated speed rpm	: 1050 : 10.65 : + 0.05 : 500 : 11.20 : + 0.10 : 740 : 11.20 : + 0.10 : 800 : 11.00 : + 0.10
position degree Rated Speed rpm  Rack travel in mm Tolerance mm  FULL LOAD DELIVERY  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 500 : 20.00 : + 0.80 AT FULL LOAD STOP : 1050 : - : 103.0 : + 1.0 : + 3.0 : 3.5	TORQUE CONTROL  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm	: 1050 : 10.65 : + 0.05 : 500 : 11.20 : + 0.10 : 740 : 11.20 : + 0.10 : 800 : 11.00 : + 0.10
position gegree Rated Speed rpm  Rack travel in mm Tolerance mm  FULL LOAD DELIVERY  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance	: 500 : 20.00 : + 0.80 AT FULL LOAD STOP : 1050 : - : 103.0 : + 1.0 : + 3.0 : 3.5	TORQUE CONTROL  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm  Start interlock Rated speed rpm	: 1050 : 10.65 : + 0.05 : 500 : 11.20 : + 0.10 : 740 : 11.20 : + 0.10 : 800 : 11.00 : + 0.10

Check speed 1/min : > 80 Check

speed 1/min : < 160

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa 500 Rated speed rpm

Del. quantity cm3/1000 strokes : 91.5

Aneroid pressure

hPa 800 Rated speed rpm

Del. quantity

cm3/1000 strokes : 103.0

Tolerance

cm3/1000 strokes : +- 1.5

Check tolerance

cm3/1000s. 3.5

## STARTING FUEL DELIVERY

Rated speed rpm 100 17.80 rack travel mm Tolerance mm : **←** 0.30 Del. quantity

cm3/1000 strokes : 150.0

Tolerance

cm3/1000 strokes : +- 5.9

Check tolerance

cm3/1000s. : +--8.0

### LOW IDLE

200 Rated speed rpm :

Del. quantity

13.0 cm3/1000 strokes :

Tolerance

cm3/1000 strokes : +-2.0

Check tolerance

cm3/1000s. 4.5

Spreed

Tolerance

3.5 cm3/1000 strokes :

Check tolerance

cm3/1000s. 5.5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 24,01,97 : ISO 4113

Combination No. : 0 402 746 614

Injection pump

Pump designation : PES6P120A320RS7419 EP type number : 0 412 726 961

Governor

Governer design. : RQV300...1300PA1288K

Governer no. : 0 421 815 519

Cust. part No. : 386 6799

Customer-spec. information

Customer : CDC

Motor

: 6CTA

Power KW

: 320.4

### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C

Tolerance °C

: +- 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : Inlet press. bar : 2.0 Tolerance bar : + 0.1

Test nozzle holde

assembly

: 1 688 901 103

Opening pressure

bar

208.5

Tolerance bar : +- 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

K16

x inside diameter : 3.0 x Length mme : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quart.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : ← 1.0

Prestroke mm :

3.65

Toterance man

: +- 0.05

Check

tolerance mm

: **←** 0.10

Rack travel in mm: 9.50

Tolerance ma : +- 1.00

Firing order : 1-5-3-6-2-

Phasing

: 0-60-120-180-240 : +- 0.30

Tolerance

Check

tolerance \*/NW

: **←** 0.75

Start of delivery blocking

\*NW after s.o.d. : 12.25

Tolerance

: ← 0.50

Check

tolerance \*NW

: **←** 0.75

Barrel no.

: 1

BASIC SETTING

Rated speed rpm : 1300

Rated speed rpm :

300

+	Rated speed rpm : 1520
Rack travel in mm: 6.20	Tolerance 1/min : + 15
Del. quantity +	
cm3/1000 strokes : 26.0 +	rack travel mm : 0.50
Tolerance + 3.0 +	Tolerance mm : + 0.50
Check tolerance	Rated speed rpm : 1600
cn3/1900s. : = 5.0	
Spreed	
Tolerance	
cm3/1000 strokes : 5.0 +	LOW IDLE
Check tolerance + cm3/1000s. : 8.0 +	
cm3/1000s. : 8.0 †	control lever
I	position degree : 71.0
(B) SETTING OF INJECTION PUMP	tolerance degree : +- 4.0
WITH GOVERNOR +	
+	Control lever difference
	Gred : 49.0
GUIDE SLEEVE TRAVEL	tolerance degree : + 6.0
Rated speed rpm : 1372	Testing:
guide sleeve	
travel mm : 9.96	Rated speed spm : 300
Tolerance mm : - 0.15	rack travel mm : 6.20
Rated speed rpm : 300	Rated speed rpm : 250
guide sleeve	kated speed i pili . 250
travel mm : 1.29	CRT mm min. : > 7.00
Tolerance mm : + 0.20	
+	Rated speed rpm : 450
Rated speed rpm : 917	
guide sleeve + travel mm : 6.76 +	TORQUE CONTROL
Tolerance mm : ÷ 0.25	TORQUE CONTROL
Total disconsist	Rated speed rpm : 1300
Rated speed rpm : 590	
guide sleeve	Rated speed rpm : 900
travel mm : 4.95	rack travel mm : 13.60
Tolerance mm : + 0.25	Tolerance mm : + 0.10
Rated speed rpm : 1710	Rated speed rpm : 600
guide sleeve	rack travel mm : 13.05
travel mm : 13.50 +	rack travel mm : 13.05 Tolerance mm : + 0.20
Tolerance mm : + 0.50	
†	ANEROID/ALTITUDE
	COMPENSATOR TEST
CONTROL LEVER	CONTROL TEST
+	
control lever	SETTING
position degree : 120.0	Dated aread area a 1700
tolerance degree : +- 4.0	Rated speed rpm : 1300 Pressure hPa : 1500
RATED SPEED	11 63501 6 11 G . 1300
rack travel mm : 13.00	Pressure hPa : -
Rated speed rpm : 1365	Rated speed rpm : 1000
Tolerance 1/min : +- 5	rack travel mm : 9.85
†	Tolerance mm : +- 0.20
rack travel mm : 4.00	

#### MEASUREMENT

1300 Rated speed rpm :

Pressure hPa 890 12.80 rack travel mm Tolerance mm : +- 0.20

400 Pressure hPa 10.80 rack travel mm

Tolerance mm : +- 0.20

Start interlock

### FIJEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa 1500 Rated speed rpm 900

Del. quantity

cm3/1000 strokes : 241.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  6.0

Check tolerance cm3/1000s. 8.0

Spareed Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. 12.0

Aneroid pressure

1000

Rated speed rpm Del. quantity

cm3/1000 strokes : 123.0

Tolerance

cm3/1000 strokes : +-1.0

Check tolerance

cm3/1000s. 3.0

### STARTING FUEL DELIVERY

Rated speed rpm 100 9.10 rack travel mm

Del. quantity cm3/1000 strokes : 123.0

Tolerance

cm3/1000 strokes : +- 20.0

Check tolerance

cm3/1000S. : **←** 25.0

LOW IDLE

300 Rated speed rpm :

Del. quantity cm3/1000 strokes : 26.0

Tolerance

cm3/1000 strokes : +-3.0

Check tolerance

cm3/1000s. 5.0 ; +-

Spreed

Tolerance cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. 8.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 04.02.97 Edition Test oil : 04.02.97

Combination No. : 0 402 776 834

Injection pump

Pump designation : PES6P120A720RS7382

EP type number : 0 412 726 943

Governor

Governer design. : RSV400...750P4A610

Governer no. : 0 421 833 520

Cust. part No. : RE66451

Customer-spec. information Customer : DEERE : 6081 HF001 Motor

: 175.0 Power KW

#### TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

tempo. °C ÷ 2.0 Tolerance °C

Overflow valve : 2 417 413 079

Inlet press. bar : 2.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

#### BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 3.60 Tolerance mm : + 0.05 Check

tolerance mm : **←** 0.10

Rack travel in mm : 10.50 Tolerance mm : ← 1.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120 Tolerance : +- 0.30 : 0-60-120-180-240

Check

tolerance \*NW : +- 0.75

Start of delivery blocking

\*NW after s.o.d. : 9.00 Tolerance : ← 0.50

Check

tolerance \*NW :  $\leftarrow$  0.75

: 1 Barrel no.

Beginning of delivery differende

and maximum rack

14.00 travel : Difference \* CS : 2.50

BASIC SETTING

Rated speed rpm : 700

,		
Rack travel in mm : Tolerance mm :		FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 700
Del quantity cm3/1000 strokes :	251.0	Anercid pressure hPa : - Del. quantity
Tolerance cm3/1000 strokes :	+ 1.0	cm3/1000 strokes : 251.0 Tolerance cm3/1000 strokes : + 1.0
Check tolerance cm3/1000s. :	+ 4.0	Check tolerance cm3/1000s. : +- 4.0 Spreed
Spreed		Tolerance
Tolerance cm3/1000 strokes :	5.0	cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0
Check tolerance cm3/1000s. :	9.0	CONTROL LEVER
Rated speed rpm :	400	control lever position degree : 91.0 tolerance degree : + 4.0
Rack travel in mm : Tolerance mm :	5.50 +- C.10	RATED SPEED
Del. quantity	<del> </del>	rack travel mm : 12.00
cm3/1000 strokes : Tolerance	22.0	Rated speed rpm : 755 Tolerance 1/min : +- 5
cm3/1000 strokes :	<b>←</b> 3.0 ₹	roterance minim . +- 3
Check tolerance cm3/1000s. : Spreed	<b>←</b> 5.0	rack travel mm : 4.00 Rated speed rpm : 790 Tolerance 1/min : +- 5
Tolerance cm3/1000 strokes :	8.0	rack travel mm : 0.85
Check tolerance	+	Tolerance mm : + 0.55
cm3/1000s. :	12.0	Rated speed rpm : 950
(B) SETTING OF INJE	CTION PUMP	rack travel mm : 4.00 Rated speed rpm : 820
GUIDE SLEEVE POSITION	ON	LOW IDLE
control lever position degree : Rated speed rpm :	- 3 800	control lever position degree : 74.0 tolerance degree : +- 4.0
Rack travel in mm : Tolerance mm :		Setting point w/out bumper spring
	+	Rated speed rpm : 400 rack travel mm : 5.00
governor spring pre-tension	Ţ	Tolerance num: 5.00
click setting x :	2.50	Testing:

Rated speed rpm Amercid pressure	: 700	
hPa	: -	
Del. quantity cm3/1000 strokes Tolerance	: 251.0	
cm3/1000 strokes Check tolerance	: + 1.0	
cm3/1000s.	: +- 4.0	
Spreed Tolerance cm3/1000 strokes	: 5.0	
Check tolerance		
cm3/1000s.	: 9.0	
CONTROL LEVER		
control lever		
position degree tolerance degree	: 91.0 : ← 4.0	
RATED SPEED	. 12.00	
rack travel mm Rated speed rpm	: 12.00 : 755 _	
Tolerance 1/min	: +- 5	
rack travel mm Rated speed rpm	: 4.00 : 790	
Tolerance 1/min	: +- 5	
rack travel mm Tolerance mm	: 0.85 : ← 0.55	
Rated speed rpm	: 950	
rack travel mm Rated speed rpm	: 4.00 : 820	
LOW IDLE		
control lever		
position degree tolerance degree	: 74.0 : + 4.0	
Setting point w/out bumper spring		
Rated speed rpm	: 400 : 5.00	
rack travel mm Tolerance mm	: +- 0.10	

Rated speed rpm : 400 rack travel mm : 5.50 Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 700 rack travel mm : 13.60 Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100

Check

speed 1/min : > 80

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : + 0.50

Del. quantity

cm3/1000 strokes : 105.0

Tolerance

cm3/1000 strokes : +- 20.0

Check tolerance

cm3/1000s.  $: \leftarrow 25.0$ 

LOW IDLE

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 22.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  3.0

Check tolerance

cm3/1000s. :  $\leftarrow$  5.0

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 04.02.97

Test oil : ISO 4113

Combination No. : 0 402 776 835

Injection pump

Pump designation : PES6P120A720RS7382

EP type number : 0 412 725 943

Governor

Governer design. : RSV400...750P4A607

Governer no. : 0 421 833 521

Cust. part No. : RE66458

Customer-spec, information

Customer : DEERE

Motor

: 6081 HF001

Power KW

: 175.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C

Tolerance °C

: +- 2.0

Overflow valve : 2 417 413 079

Inlet press. bar : 2.0

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

: 208.5

Tolerance bar : +- 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 3.60 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm: 10.50

Tolerance mm : ← 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

Phasing Tolerance : **←** 0.30

Check

tolerance \*NW : **←** 0.75

Start of delivery blocking

\*NW after s.o.d. : 9.00

: **←** 0.50 Tolerance

Check

tolerance \*NW : ← 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack

travel

14.00 Difference \* CS : 2.50

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm: 13.60 Tolerance mm: + 0.05	FULL LOAD DELIVERY AT FULL LOAD STOP
*	Rated speed rpm : 700
Cel. quantity +	Aneroid pressure
cm3/1000 strokes : 251.0	hPa : -
1	Del. quantity
Tolerance	
cm3/1000 strokes : $+-$ 1.0 $+$	Tolerance
	cm3/1000 strokes : $+-1.0$
Check tolerance	Check tolerance
cm3/1000s. : +- 4.0	cm3/1000s. : +- 4.0
Cilia/ 10003.	
	Spreed
Spreed	Tolerance
1	cm3/1000 strokes : 5.0
Volerance +	Check tolerance
cm3/1000 strokes : 5.0 +	cm3/1000s. : 9.0
+	
Check tolerance	
cm3/1000s. 9.0	
Cilib/ 10003.	CONTROL LEUED
	CONTROL LEVER
+	
1	control lever
Rated speed rpm : 400	position degree : 91.0
Mateu speed (pii)	
T	tolerance degree : + 4.0
Rack travel in mm: 5.50	
Tolerance mm : $+$ 0.10 $+$	RATED SPEED
Del. quantity	rack travel mm : 12.00
cm3/1000 strokes : 22.0	Rated speed rpm : 755
	The same of the sa
Tolerance	Tolerance 1/min : + 5
cm3/1000 strokes : + 3.0 +	
Check tolerance	rack travel mm : 4.00
cm3/1000s. : + 5.0	Rated speed rpm : 790
Spreed	Tolerance 1/min : + 5
Tolerance +	
cm $3/1000$ strokes : 8.0 $+$	rack travel mm : 0.85
Check tolerance	Tolerance mm: : +- 0.55
cm3/1000s. : 12.0	Rated speed rpm : 950
CIID/ 10003 12.0	Rated Speed ( pill . 750
†	
+	rack travel mm : 4.00
(B) SETTING OF INJECTION PUMP +	Rated speed rpm : 820
WITH GOVERNOR	
WITH GOVERNOR	
Ť	
†	
<del></del>	
GUIDE SLEEVE POSITION +	LOW IDLE
<u> </u>	
1	
control lever	control lever
position degree : -3 +	position degree : 74.0
Rated speed rpm : 800 +	tolerance degree : + 4.0
Rack travel in mm: 0.50	Cotting point wort human coming
_	Setting point w/out bumper spring
Tolerance mm : + 0.20 +	
+	Rated speed rpm : 400
governor spring +	rack travel mm : 5.00
pre-tension +	Tolerance mm : +- 0.10
	TOTAL MINE TO THE
click setting x : 2.50 +	
+	Testing:
·	_

Rated speed rpm : 400 rack travel mma : 5.50 Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 700 rack travel mm : 13.60 Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100

Check

speed 1/min : > 80

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : + 0.50

Del. quantity

cm3/1000 strokes : 105.0

Tolerance

cm3/1000 strokes : + 20.0

Check tolerance

cm3/1000s. :  $\leftarrow$  25.0

LOW IDLE

Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 22.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  3.0

Check tolerance

cm3/1000s. : +- 5.0

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 03.02.97 Edition Test oil : 150 4113

Combination No. : F 002 A0Z 013

Injection pump

Pump designation: PES6A95D320/3RS2881 EP type number : 9 410 037 215

Governor

Governer design. : RSV475...1000A0C890R

Governer no. : F 002 A20 213

Cust. part No. : 3930163

Customer—spec. information Customer : CDC : 6BTA Motor : 123.0 Power KW

#### TEST BENCH REGULREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40 : ← 2.0 Tolerance °C

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

: 208.5 Tolerance bar : ← 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 2.85 Tolerance mm : + 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

Start of delivery blocking

\*NW after s.o.d. : 7.50 Tolerance :  $\leftarrow$  0.10

Check

tolerance \*NW : +- 0.29

Barrel no. : 1

#### BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm: 13.70 Tolerance mm : + 0.05

Del. quantity cm3/1000 strokes : 116.0

K25

	→ Del. quantity
Tolerance	+ cm3/1000 strokes : 116.0
cm3/1000 strokes : + 1.0	+ Tolerance
	+ cm3/1000 strokes : +- 1.0
Check tolerance cm3/100GS. : + 3.0	+ Check tolerance
cm3/100GS. : + 3.0	+ cm3/1000s. : + 3.0 + Spreed
Spreed	Tolerance
opi cca	cm3/1000 strokes : 3.5
Tolerance	- Check tolerance
cm3/1000 strokes : 3.5	+ cm3/100Cs. : 6.0
	+
Check tolerance	†
cm3/1000S. : 6.0	CONTROL LEVED
	CONTROL LEVER
•	I control lever
Rated speed rpm : 475	position degree : 95.0
	tolerance degree : + 4.0
Rack travel in mm : 5.95	+
Tolerance mm : + 0.10	+ RATED SPEED
Del. quentity	rack travel man : 12.70
cm3/1000 strokes : 20.6	Rated speed rpm : 1045
Tolerance cm3/1000 strokes : +- 2.0	Tolerance 1/min : +- 5
Check tolerance	rack travel mm : 6.70
cm3/1000s. : +- 4.5	Rated speed rpm : 1120
Spreed	+ Tolerance 1/min : + 5
Tolerance	
cm3/1000 strokes : 3.5	+ rack travel mm : 0.85
Check tolerance	+ Tolerance mm : + 0.55
cm3/1000s. : 5.5	+ Rated speed rpm : 1200
	†
(B) SETTING OF INJECTION PUMP	+ rack travel mm : 6.70 + Rated speed rpm : 1120
WITH GOVERNOR	† Rated speed rpm : 1120
WEITH GOVERNOR	I
	1
GUIDE SLEEVE POSITION	+ LOW IDLE
	†
control lever	t control lever
position degree : FREE	position degree : 75.0
Rated speed rpm : 800	tolerance degree : + 4.0
	+
Rack travel in mm : 0.50	+ Control lever difference
Tolerance mm : + 0.20	+ Grad : 20.0
	tolerance degree : +- 6.0
governor spring	Cathing paint was burner and
pre-tension click setting x : 2.50	Setting point w/out bumper spring
TELEM SELECTING A . E.JU	Rated speed rpm : 475
	rack travel mm : 5.45
FULL LOAD DELIVERY AT FULL LOAD STOP	Tolerance mm : + 0.10
	+
Rated speed rpm : 1000	+ Testing:
Aneroid pressure	t Standard Comment
hPa : 1200	Rated speed rpm : 475
	+ rack travel mm : 5.95

Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. ; > 19.00

TORQUE CONTROL

Rated speed rpm : 1000 rack travel mm : 13.70 : +- 0.05 Tolerance mm

Rated speed rpm : 750

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500 Pressure hPa : 1200

Pressure hPa Rated speed rpm : 500 rack travel mm : 11.00 : +- 0.10 Tolerance mm

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 600 rack travel mm : 13.20 : + 0.20 Tolerance mm

: 370 : 11.70 : ← 0.20 Pressure hPa rack travel mm : Tolerance mm

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa Rated speed rpm : 500 Del. quantity

cm3/1000 strokes : 87.5

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance

cm3/1000s. : +- 3.0 STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm :  $\leftarrow$  0.50 Del. quantity

cm3/1000 strokes : 121.5

Tolerance

cm3/1000 strokes : +- 10.0

Check tolerance

cm3/1000s. : ← 15.0

LOW IDLE

Rated speed rpm : 475

Del. quantity cm3/1000 strokes : 20.6

Tolerance

cm3/1000 strokes :  $\leftarrow$  2.0

Check tolerance

cm3/1000s. : **←** 4.5 Spreed

Tolerance

cm3/1000 strokes : 3.5

Check tolerance

cm3/1000s.: 5.5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 11.02.97 Edition Test oil : ISO 4113

Combination No. : 0 402 076 770A

Injection pump

Pump designation : PES6P110A320LS3318 EP type number : 0 412 016 749

Governor

Governer design. : RSV350...750P4A561

Governer no. :

Cust. part No. : 1823837091A

Customer-spec, information Customer : NAVISTAR : DT-531 Motor Power KW : 243.0

#### TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlat

temp. °C : 40 : + 2.0 Tolerance °C

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8
Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.8

x inside diameter: 3.0 x length mm : 600

#### **REMARKS**

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : + 1.0

Prestroke mm : 3.00 Tolerance mm : + 0.05 Check

: **←** 0.10 tolerance mm

Rack travel in mm: 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240 Tolerance : +- 0.30

Check

tolerance °NW : + 0.75

Start of delivery blocking

Tolerance : +- 0.50

Check

tolerance \*NW : **←** 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 12.55 Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 216.5

+ Tolerance + cm3/1000 strokes : +- 1.0
+ Check tolerance + cm3/1000s. : + 3.0 + Spreed
Tolerance cm3/1000 strokes : 4.0
Check tolerance cm3/1000s. : 6.5
CONTROL LEVER
control lever position degree : 47.0 tolerance degree : + 4.0
+ RATED SPEED + rack travel mm : 11.50
+ Rated speed rpm : 910 + Tolerance 1/min : + 5
rack travel mm : 4.00 Rated speed rpm : 950 Tolerance 1/min : + 5
rack travel mm : 0.85 Tolerance mm : + 0.55 Rated speed rpm : 1025
rack travel mm : 4.00 Rated speed rpm : 955
LOW IDLE
control lever position degree : 26.0 tolerance degree : +- 4.0
Testing:
+ Rated speed rpm : 350 - rack travel mm : 4.90 - Tolerance mm : + 0.10
Rated speed rpm : 100
CRT mm min. : > 19.00
TARRIUS CALIFRAL
+ TORQUE CONTROL

### Start interlock

## STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 0.50
Del. quantity
cm3/1000 strokes : 145.0
Tolerance
cm3/1000 strokes : + 20.0
Check tolerance
cm3/1000s. : + 25.0

#### LOW IDLE

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 14.5
Tolerance
cm3/1000 strokes : + 2.0
Check tolerance
cm3/1000s. : + 4.5
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000s. : 12.0

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Refer to Service Info for test and adjustment instructions. See microcard(s) W400/... : 11.02.97 Edition Test oil : ISO 4113 Combination No. : 0 402 076 7708 Injection pump Pump designation : PES6P110A320LS3318 EP type number : Governor Governer design. : RSV350...750P4A561 Governer no. Cust. part No. : 1823837C91B Customer-spec. information Customer : NAVISTAR : DT-531 Motor Power KW : 205.0 TEST BENCH REQUIREMENTS Inlet line : 4.2 Test oil inlet temp. °C : +- 2.0 Tolerance °C Overflow valve : 1 417 413 076 Inlet press. bar : 2.8 Tolerance bar : ← 0.1 Inlet press. bar : Test nozzle holde assembly : 1 688 901 101 Opening pressure 208.5 bar Tolerance bar : +- 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0 x length mm : 600 REMARKS (A) INJECTION PUMP SETTING VALUES Set equal delivery quant. per values \_\_\_\_ BEGINNING OF DELIVERY Test pressure bar: 17.0 Tolerance bar : +- 1.0 Prestroke mm 3.00 Tolerance mm : +- 0.05 Check : +- 0.10 tolerance mm Rack travel in mm : 10.50 Tolerance mm : +- 1.50 Firing order : 1-5-3-6-2-Phasing : 0-60-120-180-240 Tolerance : +- 0.30 Check tolerance \*NW : + 0.75 Start of delivery blocking Tolerance : +- 0.50 Check tolerance \*NW : **←** 0.75 Barrel no. : 1 BASIC SETTING Rated speed rpm : 650 Rack travel in mm: 11.65 Tolerance mm :  $\leftarrow$  0.05 Del. quantity cm3/1000 strokes : 200.0

Tolerance	† Tolerance
cm3/1000 strokes : +- 1.0	+ cm3/1000 strokes : + 1.0
	+ Check tolerance
Sheck tolerance	- cm3/1000s. : +- 3.0
$cm3/1000s$ , : $\leftarrow$ 3.0	Spreed
	+ Tolerance
Spreed	- cm3/1000 strokes : 4.0
obi eea	
Talanamaa	+ Check tolerance
Tolerance	+ cm3/1000s. : 6.5
cm3/1000 strokes : 4.0	†
	†
Check tolerance	
cm3/1000s. : 6.5	+ CONTROL LEVER
	†
	-{· control lever
	+ position degree : 97.0
Rated speed rpm : 340	tolerance degree : + 4.0
	+
Rack travel in mm: 5.20	+ RATED SPEED
Tolerance mm : + 0.10	reck travel mm : 10.20
Del. quantity	Rated speed rpm : 750
cm3/1000 strokes : 35.0	+ Tolerance 1/min : +- 5
Tolerance	I roter differ triming
cm3/1000 strokes : +- 2.0	rack travel mm : 4.00
Check tolerance	
	+ Rated speed rpm : 800
cm3/1000s. : +- 4.5	† Tolerance 1/min : +- 5
Spreed	<b>†</b>
Tolerance	† rack travel mm : 0.85
cm3/1000 strokes : 8.0	+ Tolerance mm : ← 0.55
Check tolerance	+ Rated speed rpm : 900
cm3/100Cs. : 12.0	<del>}</del>
	rack travel mm : 4.00
	Rated speed rpm : 805
(B) SETTING OF INJECTION PUMP	
WITH GOVERNOR	1
	1
	LOW IDLE
GUIDE SLEEVE POSITION	1
	1
	T control lever
control leven	
control lever	position degree : 76.0
position degree : - 3	tolerance degree : + 4.0
Rated speed rpm : 800	T
	† Testing:
Rack travel in mm: 0.50	
Tolerance mm : ← 0.20	+ Rated speed rpm : 340
	+ rack travel mm : 5.20
governor spring	rack travel mm : 5.20 Tolerance mm : + 0.10
pre-tension	+
click setting x : 4.00	Rated speed rpm : 100
	+ CRT mm min. : > 19.00
FULL LOAD DELIVERY AT FULL LOAD STOP	
TOUR COMP PERSON AS SOLE FOUND STOR	1
Rated speed rpm : 650	TORQUE CONTROL
	T TORAGE CONTROL
Aneroid pressure	T Detail and a second s
hPa : -	+ kated speed rpm : 650
vet. quantity	Rated speed rpm : 650 rack travel mm : 11.65 Tolerance mm : + 0.05
cm3/1000 strokes : 200.0	+ Tolerance mm : + 0.05

### Start interlock

### STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mma : + 0.50 Del. quantity cm3/1000 strokes : 155.0 Tolerance

cm3/1000 strokes : ← 20.0
Check tolerance

cm3/1000s. :  $\leftarrow$  25.0

# LOW IDLE

Rated speed rpm : 340
Del. quantity
cm3/1000 strokes : 35.0
Tolerance
cm3/1000 strokes : +- 2.0
Check tolerance
cm3/1000s. : +- 4.5
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 11.02.97 Edition Test oil : 150 4113

Combination No. : 0 402 076 7700

Injection pump

Pump designation : PES6P110A320LS3318

EP type number :

Governor

Soverner design. : RSV350...750P4A561

Governer no. :

Cust. part No. : 18238370910

Customer-spec. information Customer : NAVISTAR : DT-531 Motor Power KW : 227.5

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C 40 Tolerance °C : +- 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8 Tolerance bar : + 0.1 Inlet press. bar :

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 3.00 Tolerance mm : + 0.05 Check

tolerance mm : +- 0.10

Rack travel in mm: 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240 Tolerance : ← 0.30

Check

tolerance \*NW : +- 0.75

Start of delivery blocking

Tolerance :  $\leftarrow$  0.50 Check : +- 0.75 tolerance \*NW

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 12.45 Tolerance mm :  $\leftarrow$  0.05

Del. quantity cm3/1000 strokes : 213.5

L06

Tolerance cm3/1000 strokes : +- 1.0	<pre>Tolerance cm3/1000 strokes : + 1.0 Check tolerance</pre>
Check tolerance cm3/1000s. : + 3.0	cm3/1060s. : - 3.0  Spreed Tolerance
Spreed	+ cm3/1000 strokes : 4.0
Tolerance cm3/1000 strokes : 4.0	the check tolerance cm3/1000s. : 6.5
Check tolerance cm3/1000S. : 6.5	CONTROL LEVER
	control lever
Rated speed rpm : 340	position degree : 97.0 tolerance degree : + 4.0
Rack travel in mm : 5.20	T RATED SPEED
Toterance mm : - 0.10	rack travel mm : 11.40
Del. quantity cm3/1000 strokes : 35.0	+ Rated speed rpm : 910 + Tolerance 1/min : +- 5
Tolerance	T Toterance Triming : +- 3
cm3/1000 strokes : + 2.0	rack travel mm : 4.00
Check tolerance	+ Rated speed rpm : 950
cm3/1000s. : 4.5 Spreed	rack travel mm : 0.85
Tolerance	Tolerance mm : + 0.55
cm3/1000 strokes : 8.0	+ Rated speed rpm : 1025
Check tolerance	+
cm3/1000s. : 12.0	rack travel nm : 4.00 Rated speed rpm : 955
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	‡
	LOW IDLE
GUIDE SLEEVE POSITION	+
	control lever position degree : 76.8
control lever	tolerance degree : +- 4.0
position degree : - 3	+
Rated speed rpm : 800	Testing:
Rack travel in mm : 0.50	Rated speed rpm : 340
Tolerance mm : + 0.20	+ rack travel mm : 5.20
	+ Tolerance mm : ← 0.10
governor spring pre-tension	+ Rated speed rpm : 100
click setting x : 4.00	Therea speed rpm . 100
	+ CRT mm min. : > 19.00
FULL LOAD DELIVERY AT FULL LOAD STOP	TORQUE CONTROL
Rated speed rpm : 900	- TONGOE CONTINUE
Aneroid pressure	- Rated speed rpm : 900
hPa : -	rack travel mm : 12.45
Del. quantity cm3/1000 strokes : 213.5	† Tolerance mm : ← 0.05
CIID/ TUUU SCHUKES : 213.3	т

## Start interlock

### STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : ← 0.50 Del. quantity cm3/1000 strokes : 145.0

Tolerance cm3/1000 strokes : + 20.0

Check tolerance

cm3/1000s. : +- 25.0

#### LOW IDLE

Rated speed rpm : 340
Del. quantity
cm3/1000 strokes : 35.0
Tolerance
cm3/1000 strokes : +- 2.0
Check tolerance
cm3/1000s. : +- 4.5
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000s. : 12.0

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Refer to Service Info for test and adjustment instructions. See microcard(s) W400/... Edition | : 11.02.97 : ISO 4113 Test oil Combination No. : 0 402 076 7700 Injection pump Pump designation : PES6P110A320LS3318 EP type number Governor Governor design. : RSV350...750P4A561 Governer no. Cust. part No. : 1823837091D Customer-spec. information Customer : NAVISTAR : DT-531 Motor : 160.5 Power KW TEST BENCH REQUIREMENTS Inlet line : 4.2 Test oil inlet temp. °C 40 Tolerance °C : +- 2.0 Overflow valve : 1 417 413 076 Inlet press. bar : 2.8 Tolerance bar :  $\leftarrow$  0.1 Test nozzle holde : 1 688 901 101 assembly Opening pressure 208.5 bar Tolerance bar : + 1.5

: 1 680 750 015

x length mm : 600 REMARKS (A) INJECTION PUMP SETTING VALUES Set equal delivery quant. per values \_\_\_\_ BEGINNING OF DELIVERY Test pressure bar : 17.0 Tolerance bar : +- 1.0 Prestroke mm 3.00 : +- 0.05 Tolerance mm Check tolerance mm : + 0.10 Rack travel in mm : 10.50 Tolerance mm : +- 1.50 Firing order : 1-5-3-6-2-: 0-60-120-180-240 Phasing Tolerance : +- 0.30 Check tolerance \*NW : +- 0.75 Start of delivery blocking : +- 0.50 Tolerance Check : **←** 0.75 tolerance \*NW Barrel no. : 1 BASIC SETTING Rated speed rpm : 650 Rack travel in mm : 11.15 Tolerance mm :  $\leftarrow$  0.05 Del. quantity cm3/1000 strokes : 187.0

x inside diameter :

3.0

L09

Test lines

Outside diameter : 6.0

Tolerance	+ Tolerance
cm3/1000 strokes : + 1.0	+ cm3/1000 strokes : +- 1.0
	+ Check tolerance
Check tolerance	+ cm3/1000s. : $+$ 3.0
$cm3/1000s$ . : $\leftarrow$ 3.0	+ Spreed
	+ Tolarance
Spreed	+ cm3/1000 strokes : 4.0
	+ Check tolerance
Tolerance	+ cm3/1000s. : 8.0
cm3/1000 strokes : 4.0	1 0.00
	1
Check tolerance	
cm3/1000s. : 8.0	+ CONTROL LEVER
	Towns Ecren
	+ control lever
	position degree : 97.0
Rated speed rpm : 340	tolerance degree : + 4.0
Mater speed i piii . 540	I toter differ degree 4.0
Rack travel in mm : 5.20	T RATED SPEED
Tolerance mn : +- 0.10	rack travel mm : 10.20
Del. quantity	+ Rated speed rpm : 750
cm3/1000 strokes : 35.0	Tolerance 1/min : +- 5
Tolerance	T Toterance Thirm : +- 5
cm3/1000 strokes : + 2.0	Track travel mm : 4.00
Check tolerance	
cm3/1000s. : + 4.5	
	Tolerance 1/min : +- 5
Spreed	T made Amount on a con-
Tolerance	+ rack travel mm : 0.85
cm3/1000 strokes : 8.0	+ Tolerance mm : + 0.55
Check tolerance	+ Rated speed rpm : 900
cm3/1000s. : 12.0	†
	+ rack travel mm : 4.00
	+ Rated speed rpm : 805
(B) SETTING OF INJECTION PUMP	†
WITH GOVERNOR	†
	†
AUGA D AL 2018 BAAT 27ALL	+ LOW IDLE
GUIDE SLEEVE POSITION	†
	†
	+ control lever
control lever	position degree : 76.0
position degree : - 3	tolerance degree : + 4.0
Rated speed rpm : 800	†
	† Testing:
Rack travel in mm: 0.50	<b>†</b>
Tolerance mm : + 0.20	+ Rated speed rpm : 340
	+ rack travel mm : 5.20
governor_spring	† Tolerance mm : ← 0.10
pre-tension	+
click setting x : 4.00	+ Rated speed rpm : 100
	+
	+ CRT mm min. :> 19.00
FULL LOAD DELIVERY AT FULL LOAD STOP	†
	+
Rated speed rpm : 650	+ TORQUE CONTROL
Aneroid pressure	+
hPa : -	+ Rated speed rpm : 650
Del. quantity	+ rack travel mm : 11.15
cm3/1000 strokes : 187.0	+ Tolerance mm : +- 0.05

# STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : + 0.50 Del. quantity cm3/1000 strokes : 145.0 Tolerance cm3/1000 strokes : + 20.0 Check tolerance cm3/1000s. : + 25.0

### LOW IDLE

Rated speed rpm : 340
Del. quantity
cm3/1000 strokes : 35.0
Tolerance
cm3/1000 strokes : + 2.0
Check tolerance
cm3/1000s. : + 4.5
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000s. : 12.0

### Note remerks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 25,09,96 Test oil : ISO 4113

Combination No. : 0 402 076 770E

Injection rumo

Pump designation : PES6P110A320LS3318

EP type number :

Governor

Governer design. : RS/350...75024A551

Governer no. :

Cust. part No. : 1823837091E

Customer-spec, information Customer : NAVISTAR Motor : DT-531 Power KW : 149.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : **←** 2.0 Tolerance °C

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8 Tolerance bar : ← 0.1 Inlet press. bar :

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0 x length mm : 600

### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : ← 1.0

Prestroke mm : 3.00 Tolerance mm : + 0.05 Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5- 3- 6- 2-

Phasing : 0-60-120-180-240 Tolerance : + 0.30

Check

tolerance \*NW : **←** 0.75

Start of delivery blocking

Tolerance : **←** 0.50

Check

tolerance \*NW : **←** 0.75

Barrel no. : 1

# BASIC SETTING

Rated speed rpm : 650

Rack travel in mm: 10.75 Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 176.5

Tolerance	+ Tolerance
cm3/1000 strokes : +- 1.0	+ cm3/1000 strokes : +- 1.0
	+ Check tolerance
Check tolerance	+ cm3/1000s. : $+$ 3.0
$cm3/1000s$ . : $\leftarrow$ 3.0	+ Spreed
	Tolerance
Spreed	+ cm3/1000 strokes : 4.0
	- Check tolerance
Tolerance	+ cm3/1000s. : 6.5
cm3/1000 strokes : 4.0	1
CM3/1000 3410KC3 1 4.0	I
Check tolerance	
cm3/1000s. : 6.5	CONTROL LEVER
(12) 133301	I CONTINUE ELVEN
	control lever
	position degree : 97.0
Rated speed rpm : 340	tolerance degree : + 4.0
Harea sheed i hill i 240	T coverance degree : - 4.0
Rack travel in mm : 5.20	T RATED SPEED
Tolerance mm : 5.20	
	rack travel mm : 10.20
Del. quantity	+ Rated speed rpm : 750
cm3/1000 strokes : 35.0	† Tolerance 1/min : + 5
Tolerance	†
cm3/1000 strokes : + 2.0	+ rack travel mm : 4.00
Check tolerance	+ Rated speed rpm : 800
cm3/1000s. $\div$ 4.5	+ Tolerance 1/min : + 5
Spreed	+
Tolerance	+ rack travel mm : 0.85
cm3/1000 strokes : 8.0	+ Tolerance mm : + 0.55
Check tolerance	+ Rated speed rpm : 900
cm3/1000s. : 12.0	+
	+ rack travel mm : 4.00
	+ Rated speed rpm : 805
(B) SETTING OF INJECTION PUMP	
WITH GOVERNOR	1
	1
	+
	+ LOW IDLE
GUIDE SLEEVE POSITION	+
	1
	+ control lever
control lever	position degree : 76.0
position degree : - 3	tolerance degree : + 4.0
Rated speed rpm : 800	
	Testing:
Rack travel in mm: 0.50	1 cocing.
Tolerance mm : ÷ 0.20	Rated speed rpm : 340
roter direction , , o.co	+ rack travel mm : 5.20
anyeanna anaina	Tolerance mm : 5.20
governor spring pre-tension	T locerance mm ; T U. (U
	T Dated aread our : 100
click setting x : 4.00	Rated speed rpm : 100
	T CDT 10
FIRE LOAD OF THERE A DAD OTOD	+ CRT mm min. : > 19.00
FULL LOAD DELIVERY AT FULL LOAD STOP	†
Data de anno de mario de 150	TODALE CALEDO
Rated speed rpm : 650	+ TORQUE CONTROL
Aneroid pressure	†
hPa : -	+ Rated speed rpm : 650
Del. quantity	+ rack travel mm : 10.75
cm3/1000 strokes : 176.5	+ Tolerance mm : + 0.05

# STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : + 0.50

Del. quantity

cm3/1000 strokes : 145.0

Tolerance

cm3/1000 strokes : +- 20.0

Check tolerance

cm3/1000s. :  $\leftarrow$  25.0

# LOW IDLE

Rated speed rpm : 340

Del. quantity

cm3/1000 strokes : 35.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  2.0

Check tolerance

cm3/1000s. :  $\leftarrow$  4.5

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.02.97 Test oil : ISO 4113

Combination No. : 0 402 076 770F

Injection pump

Pump designation : PES6P110A320LS3318

EP type number :

Governor

Governer design. : RSV350...750P4A561

Governer no.

Cust. part No. : 1823837C91F

Customer—spec. information Customer : NAVISTAR

Motor : DT-531
Power KW : 171.5

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. \*C : 40 Tolerance \*C : +- 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8 Tolerance bar : +- 0.1

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quent.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 3.00 Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

Tolerance :  $\leftarrow$  0.30

Check

tolerance \*NW : + 0.75

Start of delivery blocking

Tolerance : +- 0.50

Check

tolerance \*NW :  $\leftarrow$  0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 12.45

Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 222.5

\_\_\_

Talanau a		
Tolerance cm3/1000 strokes : + 1.0	+ Tolerance + cm3/1000 strokes	: + 1.0
	+ Check tolerance	• • • • • • • • • • • • • • • • • • • •
Check tolerance	cm3/1000s.	: <b>←</b> 3.0
cm3/1000s. $: \leftarrow 3.0$	+ Spreed + Tolerance	
Spreed	T cm3/1000 strokes	: 4.0
	+ Check tolerance	
Tolerance	+ cm3/1000s.	: 6.5
cm3/1000 strokes : 4.0	†	
Check tolerance		
cm3/1000s. : 6.5	+ CONTROL LEVER	
	+	
	+ control lever + position degree	. 07.0
Rated speed rpm : 340	tolerance degree	: 97.0 : +- 4.0
	+	• • • • • • • • • • • • • • • • • • • •
Rack travel in mm : 5.20	+ RATED SPEED	
Tolerance mm : + 0.10 Del. quantity	+ rack travel mm + Rated speed rpm	: 11.40
cm3/1000 strokes : 35.0	Tolerance 1/min	: 910 : ← 5
Tolerance	+	• • •
$cm3/1000$ strokes : $\leftarrow$ 2.0	† rack travel mm	: 4.00
Check tolerance	+ Rated speed rpm	: 950
cm3/1000s. : +- 4.5 Spreed	† Tolerance 1/min	: ← 5
Tolerance	T rack travel mm	: 0.85
cm3/1000 strokes : 8.0	+ Tolerance mm	: <b>←</b> 0.55
Check tolerance	Rated speed rpm	: 1025
cm3/1000s. : 12.0	† mark Arrand an	
	+ rack travel mm + Rated speed rpm	: 4.00 : 955
(a) SETTING OF INJECTION FUMP	+	. ,,,,
WITH GOVERNOR	+	
	†	
	LOW IDLE	
GUIDE SLEEVE POSITION	+	
	+	
control lever	+ control lever	. 74.0
position degree : - 3	<pre>position degree tolerance degree</pre>	
Rated speed rpm : 800	+	• • • • • • • • • • • • • • • • • • • •
	† Testing:	
Rack travel in mm : 0.50 Tolerance mm : +- 0.20	T Poted anned and	. 7/0
Tolerance mm : +- 0.20	+ Rated speed rpm + rack travel mm	: 340 : 5.20
governor spring	Tolerance mm	: ← 0.10
pre-tension	+	
click setting x : 4.00	+ Rated speed rpm	: 100
	CRT mm min.	: > 19.00
FULL LOAD DELIVERY AT FULL LOAD STOP	VALUE OF THE COLUMN TWO	17.00
Rated speed rpm : 900	TORQUE CONTROL	
Aneroid pressure hPa : -	+ Rated speed rpm	: 900
Del. quantity	rack travel mm	: 12.45
cm3/1000 strokes : 222.5	Tolerance mm	: <b>←</b> 0.05

# STARTING FUEL DELIVERY

100 Rated speed rpm : rack travel mm : 20.50 Tolerance mm : + 0.50

Del. quantity cm3/1000 strokes : 145.0

Tolerance

cm3/1000 strokes : + 20.0

Check tolerance

cm3/1000s. : **←** 25.0

# LOW IDLE

Rated speed rpm : 340 Del. quantity

cm3/1000 strokes : 35.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  2.0

Check tolerance cm3/1000s. : +- 4.5

Spread

folerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil : 11.02.97 : ISO 4113

Combination No. : 0 402 076 7706

Injection pump

Pump designation : PES6P110A320LS3318

EP type number :

Governor

Governer design. : RSV350...750P4A561

Governer no.

Cust. part No. : 18238370916

Customer-spec. information Customer

Motor

: NAVISTAR : DT-531

Power KW

: 130.5

#### TEST BENCH REQUIREMENTS

Inlet line

: 4.2

Test of i inlet

temp. °C

Tolerance °C

: **←** 2.0

Overflow valve

: 1 417 413 076

Inlet press. bar : 2.8 Tolerance bar : ← 0.1

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

208.5

Tolerance bar

Test lines

: 1 680 750 015

Outside diameter : 6.0

L18

x inside diameter : 3.0 x length mm

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

17.0 Test pressure bar : Tolerance bar : **←** 1.0

Prestroke mm

3.00

Tolerance mm

: ← 0.05

Check tolerance mm

: + 0.10

Rack travel in mm : 10.50

Tolerance mm

: +- 1.50

Firing order

: 1-5-3-6-2-

Phasing

: 0-60-120-180-240

Tolerance

: **←** 0.30

Check

tolerance \*NW

: **←** 0.75

Start of delivery blocking

Tolerance Check

: **←** 0.50

tolerance \*NW

: + 0.75

Barrel no.

: 1

BASIC SETTING

Rated speed rpm :

650

Rack travel in mm:

9.95

Tolerance mm

: **←** 0.05

Del. quantity

cm3/1000 strokes :

158.0

Tolerance cm3/1000 strokes : +- 1.0	+ Tolerance + cm3/1000 strokes : + 1.0
Check tolerance	+ Check tolerance + cm3/1000S. : +- 3.0
cm3/1000s. : ← 3.0	+ Spreed + Tolerance
Spreed	+ cm3/1000 strokes : 4.0
Tolerance	+ Check tolerance + cm3/1000s. : 8.0
cm3/1000 strokes : 4.0	‡
Check tolerance cm3/1000s. : 8.0	CONTROL LEVER
	t control lever
	position degree : 97.0
Rated speed nom : 340	
	+ RATED SPEED
Rack travel in mm: 5.20	+ rack travel mm : 10.20
Tolerance mm : ← 0.10	+ Rated speed rpm : 750
Del. quantity	<pre>† Tolerance 1/min : ← 5</pre>
cm3/1000 strokes : 35.0	
Tolerance	+ rack travel mm : 4.00
cm3/1000 strokes : +- 2.0	+ Rated speed rpm : 800
Check tolerance	+ Tolerance 1/min : + 5
cm3/1000s. : + 4.5	+
Spreed	+ rack travel mm : 0.85
Tolerance	+ Tolerance mm : → 0.55
cm3/1000 strokes : 8.0	Rated speed rpm : 900
Check tolerance	-
cm3/1000s. : 12.0	rack travel mm : 4.00
	Rated speed rpm : 805
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	
	T LOW IDLE
GUIDE SLEEVE POSITION	+
	t control lever
and lavan	† position degree : 76.0
control lever	Ť Tantina.
position degree : - 3	† Testing:
Rated speed rpm : 800	Detect annual an
Dook Angual do 0.50	Rated speed rpm : 340
Rack travel in mm: 0.50	rack travel mm : 5.20 Tolerance mm : + 0.10
Tolerance mm : +- 0.20	† Tolerance mm : + 0.10
governor spring	Rated speed region: 100
pre-tension	+
click setting x : 4.00	+ CRT mm min. : > 19.00
	I
FULL LOAD DELIVERY AT FULL LOAD STOP	TORQUE CONTROL
Rated speed rpm : 650	+ Rated speed rpm : 650
Aneroid pressure	
hPa : -	+ rack travel mm : 9.95 + Tolerance mm : + 0.05
Del. quantity	+
cm3/1000 strokes : 158.0	+

# STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.50 Toleranse mm : + 0.50 Del. quantity cm3/1000 strokes : 145.0

Tolerance

cm3/1000 strokes : + 20.0

Check tolerance

cm3/1000s. : +- 25.0

## LOW IDLE

Rated speed rpm : 340 Del. quantity cm3/1000 strokes : 35.0 Tolerance cm3/1000 strokes : ← 2.0 Check tolerance cm3/1000s. ; <del>+-</del> 4.5 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance : 12.0 cm3/1000s.

#### Note remarks

hefer to Service Info for test end adjustment instructions. See microcard(s) W400/...

Edition : 11.02.97 Test oil : ISO 4113

Combination No. : 0 402 076 770H

Injection pump

Pump designation : PES6P110A320LS3318

EP type number :

Governor

Governer design. : RSV350...750P4A561

Governer no. :

Cust. part No. : 1823837091H

Customer-spec. information Customer : NAVISTAR Motor : DT-531 Power KW : 149.0

# TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

40 temp. °C Tolerance °C : **←** 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8 Tolerance bar : ← 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : ← 1.0

Prestroke am: : 3.00 Tolerance mm : + 0.05 Check tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : **←** 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240 Tolerance : +- 0.30

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Start of delivery blocking

Tolerance :  $\leftarrow$  0.50 Check

tolerance \*NW : +- 0.75

Barrel no. : 1

# BASIC SETTING

Rated speed rpm : 900

Rack travel in mm: 9.95 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 138.5

	1 1
Tolerance	† Tolerance
cm3/1000 strokes : + 1.0	cm3/1000 strokes : +- 1.0
Obselv Antonomic	+ Check tolerance
Check tolerance	cm3/1000s. : +- 3.0
cm3/1000s. : +- 3.0	+ Spreed
	Toterance
Spreed	cm3/1000 strokes : 4.0
• lange	Check tolerance
Tolerance	+ cm3/1000s. : 6.5
cm3/1000 strokes : 4.0	†
Check tolerance	Ī
cm3/1000s. : 6.5	CONTROL LEVER
CIRC 10000; . 0.9	I CONTROL LEVER
	control lever
	position degree : 97.0
Rated speed rpm : 340	tolerance degree : + 4.0
TO TO	toter unite degree : 4.0
Rack travel in mm : 5.20	RATED SPEED
Tolerance mm : + 0.10	rack travel mm : 8.90
Del. quantity	+ Rated speed rpm : 920
cm3/1000 strokes : 35.0	+ Tolerance 1/min : + 5
Tolerance	+
cm3/1000 strokes : +- 2.0	rack travel mm : 4.00
Check tolerance	Rated speed rpm : 950
cm3/1000s. $\div$ 4.5	+
Spreed	+ rack travel mm : 0.85
Tolerance	+ Tolerance mm : $+$ 0.55
cm3/1000 strokes : 8.0	+ Rated speed rpm : 1025
Check tolerance	+
cm3/1000s. : 12.0	† rack travel mm : 4.00
	+ Rated speed rpm : 955
	†
(B) SETTING OF INJECTION PUMP	†
WITH GOVERNOR	†
•	LOW IDLE
	T LOW IDLE
GUIDE SLEEVE POSITION	I
	control lever
	position degree : 76.0
control lever	tolerance degree : +- 4.0
position degree : -3	+
Rated speed rpm : 800	Testing:
	+
Rack travel in mm: 0.50	Rated speed rpm : 340
Tolerance mm : + 0.20	+ rack travel mm : 5.20
	Tolerance mm : +- 0.10
governor spring	+
pre-tension ·	+ Rated speed rpm : 100
click setting x : 4.00	+
	+ CRT mm min. : > 19.00
	†
FULL LOAD DELIVERY AT FULL LOAD STOP	TODOUS CONTROL
Dated and and are a con-	TORQUE CONTROL
Rated speed rpm : 900	† p-4-dd 000
Aneroid pressure	Rated speed rpm : 900
hPa : -	rack travel mm : 9.95 Tolerance mm : +- 0.05
Del. quantity	Tolerance mm : +- 0.05
cm3/1000 strokes : 138.5	†

# STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 0.50
Del. quantity
cm3/1000 strokes : 145.0
Tolerance
cm3/1000 strokes : + 20.0
Check tolerance

# LOW IDLE

cm3/1000S.

Rated speed rpm : 340
Del. quantity
cm3/1000 strokes : 35.0
Tolerance
cm3/1000 strokes : + 2.0
Check tolerance
cm3/1000s. : + 4.5
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000 strokes : 12.0

: <del>+-</del> 25.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 11.02.97 : ISO 4713

Combination No. : 0 402 076 770J

Injection pump

Pump designation : PES6P110A320LS3318

EP type number

Governor

Governer design. : RSV350...750P4A561

Governer no.

Cust. part No. : 1823837091J

Sustomer-spec. information

Customer : NAVISTAR

Motor

: DT-531

Power KW

: 231.0

### TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C

Tolerance °C

: **←** 2.0

Overflow valve : 1 417 413 076

Inlet press. bar :

2.8

Tolerance bar : + 0.1

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

: 208.5

Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

L24

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : ← 1.0

Prestroke mm: : 3.00

: +- 0.05 Tolerance mm

Check

tolerance mm : **←** 0.10

Rack travel in mm : 10.50

Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

Tolerance : **←** 0.30

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Start of delivery blocking

Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 650

Rack travel in mm : 12.65

Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 228.5

Tolerance	+	Tolerance	
cm3/1000 strokes	: ← 1.0 <sup>1</sup>	cm3/1000 strokes	: +- 1.0
	1	Check tolerance	
Check tolerance	+	cm3/1000s.	: +- 3.0
cm3/1000S.	: ← 3.0 <sup>1</sup>	Spreed	
	1	Tolerance	
Spreed		cm3/1000 strokes	: 4.0
opi ces	1	Check tolerance	. 4.0
Tolerance	$\mathbf{I}$	cm3/1000s.	: 6.5
cm3/1000 strokes	: 4.0	Cab/ 10003.	. 0.5
CIAST TOOC SCI OKES	· 4.0		
Check tolerance			
cm3/1000S.	: 6.5	CONTROL LEVER	
	1	OOM NOC CEVEN	
		control lever	
	1	position degree	: 97.0
Rated speed rpm	: 340	tolerance degree	
macca opeca (piii	1	toterance degree	4.0
Rack travel in mm	: 5.20	RATED SPEED	
Tolerance min		rack travel mm	: 10.20
Del. quantity	1	Rated speed rpm	<del></del>
cm3/1000 strokes	: 35.0	Tolerance 1/min	
Tolerance	· 33.0	TOCCTONCE TAIRIE	• • •
cm3/1000 strokes	: + 2.0 I	rack travel mm	: 4.00
Check tolerance	<u></u>	Rated speed rom	
cm3/1000s.	: ← 4.5 I	Tolerance 1/min	- ·
Spreed	I	Totel ance Thirti	. — 3
Tolerance	Ι	rack travel mm	: 0.85
cm3/1000 strokes	: 8.0	Tolerance mm	: + 0.55
Check tolerance	· • • • • I		: 900
cm3/1000S.	: 12.0	Rated speed rpm	: 900
cm3/10003.	12.0	rack travel mm	: 4.00
	T		
(B) SETTING OF IN	JECTION DUMP	Rated speed rpm	: 805
WITH GOVERNOR	JECTION FOMP		
WITH GOVERNOR	I		
	I		·
		LOW IDLE	
GUIDE SLEEVE POST	TION +		
	1		
	1	control lever	
control lever	1	position degree	: 76.0
position degree	:-3	tolerance degree	: +- 4.0
Rated speed rpm	: 800		-
•	1	Testing:	
Rack travel in mm	: 0.50		
Tolerance mm		Rated speed rpm	: 340
y	1	rack travel mm	
governor spring	1	Tolerance mm	: +- 0.10
pre-tension	1		· - <del>-</del>
click setting x	: 4.00	Rated speed rpm	: 100
	1	THE PERSON NAMED IN COLUMN	
		CRT mm min.	: > 19.00
FULL LOAD DELIVER	Y AT FULL LOAD STOP		· · · · · · · · · · · · · · · · · · ·
	1		
Rated speed rpm	: 650	TORQUE CONTROL	
Aneroid pressure	1		
hPa	: - 1	Rated speed rpm	: 650
Del. quantity	1	rack travel mm	
cm3/1000 strokes	· 228.5	Tolerance mm	· + 0.05
AND TOOL SELENCS	, LLU.) T	ACCUBILE IIII	0.05

# STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : + 0.50 Del. quantity

cm3/1000 strokes : 145.0

Tolerance cm3/1000 strokes : +- 20.0

Check tolerance

cm3/1000s. :  $\leftarrow$  25.0

# LOW IDLE

Rated speed rpm : 340

Del. quantity

cm3/1000 strokes : 35.0

Tolerance

cm3/1000 strokes : + 2.0

Check tolerance

cm3/1000s. : + 4.5

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil : 180 4113

: 06,02,97

Combination No. : 0 402 076 815

Injection pump

Pump designation : PES6P120A320LS3387 EP type number : 0 412 026 804

Governor

Governer design. : RSV350...750P4A561 Governer no. : 0 421 833 593

Cust. part No. : 1829851091

Customer-spec. information Customer : NAVISTAR Motor : DTA-531 Power KW : 224.0

### TEST BENCH REQUIREMENTS

Inlet line : 2.4

Test oil inlet

temp. °C : **←** 2.0 Tolerance °C

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8 Tolerance bar : + 0.1 Inlet press. bar :

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

bar 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant. per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 3.00 Tolerance mm : + 0.05 Tolerance mm

Check

tolerance mm : -- 0.10

Rack travel in mm : 10.50 Tolerance mm :  $\leftarrow$  1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 : +- 0.30 Phasing

Tolerance

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Start of delivery blocking

Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : **←** 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.50 Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 249.0

Tolerance	+ Tolerance
cm3/1000 strokes : +- 1.0	+ cm3/1000 strokes : +- 1.0
	+ Check tolerance
Check tolerance	+ cm3/1000s. : +- 3.0
$cm3/1000s$ . : $\leftarrow$ 3.0	+ Spreed
	+ Tolerance
Spreed	+ cm3/1000 strokes : 4.0
Op. 664	+ Check tolerance
Tolerance	- cm3/1000s. : 5.5
cm3/1000 strokes : 4.0	T (1957 1000) 5. 5.5
CMS/ 1000 Strokes : 4.0	Ť
	†
Check tolerance	
cm3/1000s. : 6.5	+ CONTROL LEVER
	+
	+ control lever
	+ position degree : 91.0
Rated speed rpm : 350	+ tolerance degree : + 4.0
	+
Rack travel in mm : 5.50	+ RATED SPEED
Tolerance mm : +- 0.10	+ rack travel mm : 13.50
Del. quantity	Rated speed rpm : 760
cm3/1000 strokes : 38.5	Tolerance 1/min : +- 5
	Toterance //min : +- 3
Tolerance	T
cm3/1000 strokes : + 2.0	+ rack travel mm : 4.00
Check tolerance	+ Rated speed rpm : 810
cm3/1000S. : + 4.5	+ Tolerance 1/min : ← 5
Spreed	+
Tolerance	rack travel mm : 0.85
cm3/1000 strokes : 8.0	+ Tolerance mm : + 0.55
Check tolerance	Rated speed rpm : 900
cm3/1000s. : 12.0	Rated speed I pill . 700
(IIID/ 10003	rack travel mm : 4.00
	+ Rated speed rpm : 810
(B) SETTING OF INJECTION PUMP	†
WITH GOVERNOR	†
	†
	+ LOW IDLE
GUIDE SLEEVE POSITION	+
	+
	+ control lever
control lever	position degree : 73.0
position degree : - 3	tolerance degree : + 4.0
	T totalice degree 4.0
Rated speed rpm : 800	Tanting
0.50	+ Testing:
Rack travel in mm: 0.50	<b>†</b>
Tolerance mm : + 0.20	+ Rated speed rpm : 350
	+ rack travel mm : 5.50
governor spring	+ Tolerance mm : +- 0.10
pre-tension	+
click setting x : 3.00	+ Rated speed rpm : 100
	+ CRT mm min. : > 19.00
FULL LOAD DELIVERY AT FULL LOAD STOP	
TOCK COMP DECEMENT AT THE COMP STOP	
Data described and a 700	TODOUT CONTOOL
Rated speed rpm : 700	+ TORQUE CONTROL
Aneroid pressure	†
hPa : -	+ Rated speed rpm : 700
Del. quantity	Rated speed rpm : 700 rack travel mm : 13.50 Tolerance mm : + 0.05
cm3/1000 strokes : 249.0	+ Tolerance mm : + 0.05
	•

# STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 0.50
Del. quantity
cm3/1000 strokes : 103.0
Tolerance
cm3/1000 strokes : + 20.0
Check tolerance
cm3/1000s. : + 25.0

### LOW IDLE

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 38.5
Tolerance
cm3/1000 strokes : +- 2.0
Check tolerance
cm3/1000s. : +- 4.5
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000s. : 12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 05,06,96 Test oil : ISO 4113

Combination No. : 0 402 736 843

Injection bumb

Pump designation : PES6012GA12GRS7287 EP type number : 0 412 726 890

Governor

Governer design. : RQV400...1250PA1060K

Governer no. : 0 421 815 343

Cust. part No. : 3925086

Customer-spec. information Customer : CDC : 6BTA-A Motor : 130.0 Power KW

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 103 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : +- 1.0

Prestroke mm : 3.60 Tolerance mm : + 0.05 Check : + - 0.10tolerance mm

Rack travel in mm : 10.50 Tolerance mm : ← 1.50

Firing order : 1-5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240 Tolerance : +- 0.30

Check

tolerance \*NW : + 0.75

Start of delivery blocking

\*NW after s.o.d. : 6.25 Tolerance : +- 0.50

Check

tolerance \*NW : **←** 0.75

Barrel no. : 1

# BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.65

Tolerance mm : + 0.05

Del. quantity cm3/1000 strokes	: 160.5	+	<b>⊢</b> 0.25
Tolerance		Rated speed rpm : guide sleeve	1710
cm3/1000 strokes	: <b>←</b> 1.0	travel mm :	11.5ข
	<del></del>	+ Tolerance mm :	<b>-</b> 0.50
Check tolerance cm3/1000s.	: <del>+-</del> 4.0	‡ <u> </u>	
		+ FULL LOAD DELIVERY A	FULL LOAD STOP
Spireed		†	4050
Tolerance		+ Rated speed rpm :	1250
cm3/1000 strokes	: 8.0	+ Aneroid pressure + hPa :	1200
CHO/ 1000 Strakes	. 6.0	T nra : Del. quantity	1200
Check tolerance		+ cm3/1000 strokes :	140 5
cm3/1000s.	: 12.0	+ Tolerance	100.5
CHO/ TOOUS.	. 12.0	+ cm3/1000 strokes :	_ 10
		Check tolerance	1.0
			<b>⊢</b> 4.0
Rated speed rpm	: 420	Spreed	7.0
Hatta Specu I Mill	. 750	Tolerance	
Rack travel in mm	n : 6.00	+ cm3/1000 strokes :	8.0
Tolerance mm		Check tolerance	0.0
Del. quantity	0.20	- cm3/1000s. :	12.0
cm3/1000 strokes	: 15.0	1 (110)	12.0
Tolerance	. ,,,,,		
cm3/1000 strokes	: <del></del> 3.0		
Check tolerance	, , , ,	CONTROL LEVER	
cm3/1000s.	: +- 5.0	+	
Spreed		+ control lever	
Tolerance		position degree :	117.0
cm3/1000 strokes	: 4.0	tolerance degree : -	<b>⊢</b> 6.0
Check tolerance		+	
cm3/1000s.	: 8.0	+ RATED SPEED	
			12.60
(6) 05:571/0 05 TA	MENTYALL PARKA	Rated speed rpm :	1325
(B) SETTING OF IN	MECITON POMP	+ Tolerance 1/min :	<b>⊢</b> 15
WITH GOVERNOR		T mark denoted an	/ 00
		+ rack travel mm :	
GUIDE SLEEVE TRAV	/FI	+ Rated speed rpm : - Tolerance 1/min :	
ANTAL AFFERE INVA		T rocerance //min	, ,
Rated speed rpm	: 1328	rack travel mm :	0.50
guide sleeve		1	→ 0.50
travel mm	: 7.62	+ Rated speed rpm :	
Tolerance mm	: ← 0.15	+	·
		+	
Rated speed rpm	: 400	+	
guide sleeve		+	
travel mm	: 1.44	+ LOW IDLE	
Tolerance mm	: <del>+-</del> 0.20	†	
0.4.4 1	. 405	†	
Rated speed rpm	: 685	control lever	77. 0
guide sleeve	: 3.50	position degree :	
travel mm Tolerance mm	: + 0.25	tolerance degree :	0.0
יטנכי מוונכ חוח	· +- 0.23	Control lever differe	ence
Rated speed rpm	: 490	Grad :	45.0
guide steeve	. 470	tolerance degree :	
travel mm	: 2.50	total differ degree .	0.0
UI WYU C IIPH	. 2.50	'	

Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 420 : 6.00 : ← 0.20
Rated speed rpm	: 300
CRT mm min.	: > 7.70
Rated speed rpm	: 425
TORQUE CONTROL	
Rated speed rpm rack travel mm Tolerance mm	: 1250 : 13.65 : ← 0.05
Rated speed rpm rack travel mm Tolerance mm	: 800 : 11.90 : ← 0.10
Rated speed rpm rack travel mm Tolerance mm	: 500 : 11.60 : +- C.20
ANEROID/ALTITUDE COMPENSATOR TEST	P
SETTING	
Rated speed rpm Pressure hPa	: 1250 : 1200
Pressure hPa Rated speed rpm rack travel mm Tolerance mm	: - : 1250 : 10.40 : ← 0.20
MEASUREMENT	
Rated speed rpm	: 1250
Pressure hPa rack travel mm Tolerance mm	: 375 : 12.80 : ← 0.30
Pressure hPa rack travel mm Tolerance mm	: 260 : 11.70 : ← 0.20
Start interlock	
Rated speed rpm Rated speed rpm	: > 100 : < 280

speed 1/min	: > 80	
Check	. > 00	
speed 1/min	· < 290	
FUEL DELIVERY CHA	ARACTERISTICS	
Amana 2.1 mana an		
Aneroid pressure	4200	
Rated speed rpm	: 1200 : 800	
Del. quantity	. 900	
cm3/1000 strokes	: 131.5	
Tolerance		
cm3/1000 strckes	: ← 3.0	
Check tolerance		
cm3/1000s. Spreed	: +- 6.0	
Tolerance		
cm3/1000 strokes	: 8.0	
Check tolerance		
cm3/1000s.	: 12.0	
Annada anasassas		
Aneroid pressure hPa		
Rated speed rpm	1250	
Del. quantity	. ,,,,,	
cm3/1000 strokes	: 107.5	
Tolerance		
cm3/1000 strokes	: <b>←</b> 1.0	
Check tolerance cm3/1000s.	: <del>+</del> 4.0	
CIII.57 10003.	4.0	
STARTING FUEL DEL	IVFRY	
STARTING FUEL DEL		
Rated speed rpm	: 100	
Rated speed rpm rack travel mm	: 100 : 13.50	
Rated speed rpm rack travel mm Tolerance mm	: 100	
Rated speed rpm rack travel mm Tolerance mm Del. quantity	: 100 : 13.50 : + 0.50	
Rated speed rpm rack travel mm Tolerance mm	: 100 : 13.50 : + 0.50	
Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 100 : 13.50 : + 0.50	
Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	: 100 : 13.50 : ← 0.50 : 155.0 : ← 20.0	
Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 100 : 13.50 : ← 0.50 : 155.0	
Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	: 100 : 13.50 : ← 0.50 : 155.0 : ← 20.0	
Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	: 100 : 13.50 : ← 0.50 : 155.0 : ← 20.0	
Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 100 : 13.50 : ← 0.50 : 155.0 : ← 20.0	
Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	: 100 : 13.50 : ← 0.50 : 155.0 : ← 20.0	
Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 100 : 13.50 : ← 0.50 : 155.0 : ← 20.0	
Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  LOW IDLE Rated speed rpm Del. quantity	: 100 : 13.50 : ← 0.50 : 155.0 : ← 20.0 : ← 25.0	
Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  LOW IDLE Rated speed rpm Del. quantity cm3/1000 strokes	: 100 : 13.50 : ← 0.50 : 155.0 : ← 20.0 : ← 25.0	
Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  LOW IDLE  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance	: 100 : 13.50 : ← 0.50 : 155.0 : ← 20.0 : ← 25.0 : 420 : 15.0	
Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  LOW IDLE  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 100 : 13.50 : ← 0.50 : 155.0 : ← 20.0 : ← 25.0	
Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  LOW IDLE  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance	: 100 : 13.50 : ← 0.50 : 155.0 : ← 20.0 : ← 25.0 : 420 : 15.0	
Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  LOW IDLE  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	: 100 : 13.50 : + 0.50 : 155.0 : + 20.0 : + 25.0 : 420 : 15.0 : + 3.0	

Check

Tolerance cm3/1000 strokes : 4.0

Check tolerance cm3/1000s. : 8.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 24.05.96 Test oil : ISO 4113

Combination No. : 0 402 736 844

Injection pump

Pump designation : PES6P12OA12URS7287 EP type number : 0 412 726 896

Governor

Governer design. : RQV400...1250PA964

: 1K

Governer no. : 0 421 815 354

Cust. part No. : 3921925

Customer-spec. information Customer : CDC Motor : 68TA-A Power KW : 171.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 103 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : ← 1.0

Prestroke mm : 3.60 Tolerance mm : + 0.05 Check tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 12.50 Tolerance mm: : + 1.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240Tolerance :  $\leftarrow 0.30$ 

Check

tolerance \*NW : +- 0.75

Stars of delivery blocking

\*NW after s.o.d. : 6.25 Tolerance : ← 0.50 Check

tolerance \*NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm: 14.85 Tolerance mm :  $\leftarrow$  0.05

	+ Tolerance
Del. quantity	+ cm3/1000 strokes : +- 1.0
cm3/1000 strokes : 194.5	Check tolerance
	$+$ cm3/1000s. : $\leftarrow$ 4.0
Tolerance	+ Spreea
cm3/1000 strokes : +- 1.0	Tolerance
Chaple dellarance	- cm3/1000 strokes : 8.0
Check tolerance cm3/1000s. : + 4.0	+ Check tolerance + cm3/1000s. : 12.0
CR37 10003. : +- 4.0	† cm3/1000s. : 12.0
Spreed	1
Tolerance	+ CONTROL LEVER
cm3/1000 strokes : 8.0	†
Charle Antonomy	control lever
Check tolerance cm3/1000s. : 12.0	position degree : "20.0"
CRS/ 10005. : 12.0	tolerance degree : +- 6.0
	FATED SPEED
	+ rack travel mm : 13.40
Rated speed rpm : 420	+ Rated speed rpm : 1315
•	+ Tolerance 1/min : + 15
Rack travel in mm : 5.90	+
Tolerance mm : + 0.20	rack travel mm : 4.00
Del. quantity	Rated speed rpm : 1485
cm3/1000 strokes : 16.5	+ Tolerance 1/min : + 5
Tolerance	+
cm3/1000 strokes : +- 3.0	+ rack travel mm : 0.50
Check tolerance	+ Tolerance mm : +- 0.50
$cm3/1000s.$ : $\leftarrow$ 5.0	+ Rated speed rpm : 1550
Spreed	+
Tolerance	+
cm3/1000 strokes : 4.0	+
Check tolerance	+
cm3/1000s. : 8.0	+ LOW IDLE
	†
(D) CETTING OF THE CTTON OUND	†
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	+ control lever
WITH GOVERNOR	position degree : 73.0
	tolerance degree : + 6.0
	Control lever difference
GUIDE SLEEVE POSITION	Grad : 47.0
	tolerance degree : + 4.0
	+
control lever	+ Testing:
position degree : MAx	+
Rated speed rpm : 1475	Rated speed rpm : 420
	+ rack travel mm : 5.90
Rack travel in mm: 10.50	Tolerance mm : + 0.20
Tolerance mm : + 1.50	+
	Rated speed rpm : 300
	+
FULL LOAD DELIVERY AT FULL LOAD STOP	+ CRT mm min. : > 9.00
Dated aread pro 4450	Detail speed /25
Rated speed rpm : 1150	+ Rated speed rpm : 425
Aneroid pressure	†
hPa : 1200	TODOUS CONTROL
Del. quantity	+ TORQUE CONTROL
cm3/1000 strokes : 194.5	†

Rated speed rpm rack travel mm		‡	Aneroid pressure hPa	: 1200
Tolerance mm	: <b>←</b> 0.05	<u>}</u>	Rated speed rpm Del. quantity	
Rated speed rpm rack travel mm	: 800 : 14.00	<u>†</u>	cm3/1000 strokes Tolerance	: 182.0
Tolerance mm		1	cm3/1000 strokes Check tolerance	: <b>←</b> 3.0
Rated speed rpm rack travel mm		$\frac{1}{1}$	cm3/1000S. Spreed	: ← 6.0
Tolerance mm	: + 0.10	$\frac{1}{1}$	Tolerance cm3/1000 strokes	. 80
Rated speed rpm rack travel mm		$\frac{1}{1}$	Check tolerance cm3/1000s.	
Tolerance mm		Ŧ		. 12.0
Rated speed rpm	: 600	• ‡	Aneroid pressure hPa	
rack travel mm Tolerance mm	: 13.40 : ← 0.20	‡	Rated speed rpm Del. quantity	
		‡	cm3/1000 strokes Tolerance	
ANEROID/ALTITUDE COMPENSATOR TEST		‡	cm3/1000 strokes Check tolerance	
		‡	cm3/1000s.	: +- 4.0
SETTING		‡	<del></del>	
Rated speed rpm Pressure hPa		‡	STARTING FUEL DEL	
Pressure hPa		‡	Rated speed rpm rack travel mm	: 12.50
Rated speed rpm rack travel mm		†	Tolerance mm Del. quantity	: <b>←</b> 0.50
Tolerance mm		Ŧ	cm3/1000 strokes Tolerance	: 155.0
MEASUREMENT		Ī	cm3/1000 strokes Check tolerance	: ← 20.0
Rated speed rpm	: 1150	‡	cm3/1000s.	: <b>←</b> 25.0
Pressure hPa rack travel mm	: 645 : 12. <b>80</b>	†		
Tolerance mm	+ 0.30	Ŧ	LOW IDLE	
Pressure hPa	: 355	Ţ	LOW IDEE	
rack travel mm Tolerance mm	: 10.80 : + 0.20	İ	Rated speed rpm Del. quantity	: 420
Start interlock	0.20	Ŧ	cm3/1000 strokes	: 16.5
	400	Ŧ	cm3/1000 strokes	: <b>←</b> 3.0
Rated speed rpm Rated speed rpm		Ī	Check tolerance cm3/1000S. Spreed	: ← 5.0
Check speed 1/min	: > 80	Ī	Tolerance cm3/1000 strokes	: 4.0
Check		+	Check tolerance	
speed 1/min	: < 325	‡	cm3/1000s.	: 8.0
FUEL DELIVERY CHA	ARACTERISTICS	+		

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 15.05.96 Test oil : ISO 4113

Combination No. : 0 402 736 870

Injection pump

Pump designation : PES6P120A120RS7352 EP type number : 0 412 726 923

Governor

Governer design. : RQV350...900PA1175K

Governer no. : 0 421 815 441

Cust. part No. : 3928156

Customer-spec. information Customer : CDC Motor : SCTA-A Power KW : 205.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C Tolerance °C : +- 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0Tolerance bar :  $\leftarrow$  0.1

Test nozzle holde

: 1 688 901 103 assembly

Opening pressure

208.5 bar Tolerance bar :  $\leftarrow$  1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : + 1.0

: 4.00 Prestroke mmi : +- 0.05 Tolerance mm Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 : +- 1.50 Tolerance mm

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240 Tolerance : +- 0.30

Check

tolerance \*NW :  $\leftarrow$  0.75

Start of delivery blocking

\*NW after s.o.d. : 5.50 Tolerance : +- 0.50

Check

tolerance \*NW : **←** 0.75

Barrel no. : 1

### BASIC SETTING

Rated speed rpm : 900

Rack travel in mm: 15.25 Tolerance mm : ← 0.05

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Del. quantity cm3/1000 strokes : 236.0	Check tolerance cm3/1000s. : +· 4.0 Spreed
Tolerance cm3/1000 strokes : + 1.0	Tolerance cm3/1000 strokes : 5.0 Check tolerance
Check tolerance cm3/1000s. : + 4.0	cm3/1000s. : 9.0
Spreed	CONTROL LEVER
Tolerance cm3/1000 strokes : 5.0	control lever position degree : 119.0
Check tolerance cm3/1000s. 9.0	tolerance degree : + 6.0
	RATED SPEED rack travel mm : 13.90
Rated speed rpm : 350	Rated speed rpm : 1075 Tolerance 1/min : +- 15
Rack travel in mm: 7.00 Tolerance mm: + 0.10 Del. quantity	rack travel mm : 4.00 Rated speed rpm : 1230 Tolerance 1/min : +- 5
cm3/1000 strokes : 27.0	rack travel mm : 0.50
cm3/1000 strokes : + 3.0 Check tolerance	Tolerance mm : + 0.50 Rated speed rpm : 1400
cm3/1000s. : + 5.0	rated speed rpm . 1400
Tolerance cm3/1000 strokes : 8.0	
Check tolerance cm3/1000s. : 12.0	LOW IDLE
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	<pre>control lever position degree : 69.0 tolerance degree : +- 6.0</pre>
Ŧ	Control lever difference
GUIDE SLEEVE POSITION	Grad : 50.0 tolerance degree : +- 4.0
control lever	Testing:
position degree : VH +	Rated speed rpm : 350
Rated speed rpm : 1150	rack travel mm : $7.00$ Tolerance mm : $\leftarrow 0.10$
Rack travel in mm: 13.90	Rated speed rpm : 275
FULL LOAD DELIVERY AT FULL LOAD STOP	CRT mm min. : > 8.10
Rated speed rpm : 900 Aneroid pressure	Rated speed rpm : 425
hPa : 1200 + Del. quantity + 277,1000 + 277,1000	TORQUE CONTROL
<pre>cm3/1000 strokes : 236.0 + Tolerance cm3/1000 strokes : + 1.0 +</pre>	Rated speed rpm : 900 rack travel mm : 15.25
	· · · · · · · · · · · · · · · · · · ·

Tolerance mm	: <b>←</b> 0.05	†	Tolerance	
Rated speed rpm	: 650	İ	cm3/1000 strckes Check tolerance	: 8.0
rack travel mm		Ţ	cm3/1000s.	: 12.0
Tolerance mm		+		. ,2.0
	4000	+	Aneroid pressure	
Rated speed rpm rack travel mm		†	hPa	
Tolerance mm		Ī	Rated speed rpm Del. quantity	: 1000
TO COT OTTO THE	5.10	Į	cm3/1000 strokes	: 99.0
			Tolerance	
ANEROID/ALTITUDE		+	cm3/1000 strokes	: +- 1.0
COMPENSATOR TEST		Ť	Check tolerance	
		Ī	cm3/1000s.	: <del>-</del> 3.0
SETTING		I		
		+	<del></del>	
Rated speed rpm	: 900	+	STARTING FUEL DEL	IVERY
Pressure hPa	: 1200	1	Rated speed rpm	: 100
Pressure hPa	: -	I	rack travel mm	: 11.40
Rated speed rpm	900	+	Tolerance mm	· + 0.50
rack travel mm	: 9.70	+	Del. quantity	
Tolerance min	: <b>←</b> 0.20	†	cm3/1000 strokes	: 185.0
MEASUREMENT		İ	Tolerance cm3/1000 strokes	: +- 20.0
HEADOREHEAT		I	Check tolerance	: +- 20.0
Rated speed rpm	: 900	+	cm3/1000s.	: <b>←</b> 25.0
Pressure hPa	: 825	I		
rack travel mm	: 13.80	+		
Tolerance mm	: ← 0.20	+		
Decesion hos	. 770	†	LOW IDLE	
Pressure hPa rack travel mm	: 370 : 11.15	Ī	Rated speed rpm	: 350
Tolerance mm	÷ 0.05	I	Del. quantity	. 550
		+	cm3/1000 strokes	: 27.0
Start interlock		+	Tolerance	
Dated annual aux	. > 100	†	cm3/1000 strokes	: +- 3.0
Rated speed rpm Rated speed rpm		Ī	Check tolerance cm3/1000s.	: +- 5.0
noted opeca (pii		+	Spreed	
Check		+	Tolerance	
speed 1/min	: > 80	t	cm3/1000 strokes	: 8.0
Check speed 1/min	: < 300	İ	Check tolerance cm3/1000s.	: 12.0
specu mini	. \ 500	Ī	CIID/ 10003.	. 72.0
		<del> </del>		
FUEL DELIVERY CHA	ARACTERISTICS	†		
Aneroid pressure		İ		
hPa	: 1200	Į	End of test speci	fication sheet
Rated speed rpm		+	<b>3</b> 3. <b>33</b> 33 3 <b>4</b> 33.	
Del. quantity		t		
cm3/1000 strokes	: 226.5	†		
Tolerance cm3/1000 strokes	: +- 3.0	İ		
Check tolerance	5.0	Į		
cm3/1000s.	: <del>←</del> 6.0	+		
Spreed		+		

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 28.05.96 Test oil : ISO 4113

Compination No. : 0 402 736 873

Injection pump

Pump designation : PES6P120A120RS7353 EP type number : 0 412 726 924

Governor

Governer design. : RQV350...1150PA1188K

Governer no. : 0 421 815 449

Cust. part No. : 392867%

Customer-spec. information Customer : CDC Motor : GCTA-A : 157.0 Power KW

#### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40 : +- 2.0 Tolerance °C

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 103 assembly

Opening pressure

: 208.5 Tolerance bar : ← 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 4.00Tolerance mm :  $\leftarrow 0.05$ Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 10.50 Tolerance mm : - 1.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240 Tolerance : +- 0.30

tolerance \*NW :  $\leftarrow$  0.75

Start of delivery blocking

\*NW after s.o.d. : 5.25 Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : +- 0.75

Barrel no. : 1

# BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm: 12.85 Tolerance mm :  $\leftarrow$  0.05

Del. quantity cm3/1000 strokes : 137.5	
	CONTROL LEVER
Tolerance cm3/1000 strokes : + 1.0	control lever position degree : 114.0
Check tolerance cm3/1000s. : + 4.0	tolerance degree : - 6.0
Spreed	RATED SPEED rack travel mm : 11.80
Tolerance cm3/1000 strokes : 5.0	Rated speed rpm : 1210 Tolerance 1/min : + 15
Check tolerance cm3/1000s. : 9.0	rack travel mm : 4.00 Rated speed rpm : 1350 Tolerance 1/min : +- 5
<del></del> ‡	rack travel mm : 0.50 Tolerance mm : +- 0.50
Rated speed rpm : 350	Rated speed rpm : 1425
Rack travel in mm : 6.00 † Tolerance mm : + 0.20 † Del. quantity	
cm3/1000 strokes : 23.0	LOW IDLE
cm3/1000 strokes : + 3.0 Check tolerance	control lever
cm3/1003S. : ← 5.0 + 5.0 + 5.0	position degree : 69.0 tolerance degree : + 6.0
Tolerance cm3/1000 strokes : 8.0	Control lever difference
Check tolerance : 12.0	Grad : 45.0 tolerance degree : + 6.0
(D) SEETING OF THESETION MIND	Testing:
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Rated speed rpm : 350 rack travel mm : 5.00 Tolerance mm : + 0.20
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 275
Rated speed rpm : 1100 Aneroid pressure	CRT mm min. : > 7.90
hPa : 1200 + Del. quantity +	Rated speed rpm : 425
cm3/1000 strokes : 187.5 Tolerance	TORQUE CONTROL
cm3/1000 strokes : + 1.0 check tolerance	Rated speed rpm : 1100
cm3/1000s. : +- 4.0 + Spreed + Tolerance	rack travel mm : 12.85 Tolerance mm : + 0.05
cm3/1000 strokes : 5.0 Check tolerance	Rated speed rpm : 650 rack travel mm : 11.80
cm3/1000s. : 9.0	Tolerance mm : +- 0.20
‡	Rated speed rpm : 1150 rack travel mm : 12.80

Tolerance mm	: + 0.10	Del. quantity cm3/1000 strokes : 91.0
ANEROID/ALTITUDE		
COMPENSATOR TEST		+ Check tolerance
		+ cm3/1000s. : +- 3.0
SETTING		‡
Rated speed rpm	: 1100	STARTING FUEL DELIVERY
Pressure hPa		+
Pressure hPa	• -	+ Rated speed rpm : 100 + rack travel mm : 11.50
Rated speed rpm	1100	+ rack travel mm : 11.50 + Tolerance mm : +- 0.50
rack travel mm	8.90	Del. quantity
Tolerance mm	· + 0.20	cm3/1000 strokes : 185.0
		Tolerance
MEASUREMENT		+ cm3/1000 strokes : + 20.0
		+ Check tolerance
Rated speed rpm	: 1100	+ cm3/1000s. : $+$ 25.0
Pressure hPa	: 520	I
rack travel ma	: 11.60	1
Tolerance mm	: <b>←</b> 0.20	
		+ LOW IDLE
Pressure hPa	: 255	+
rack travel mm	: 9.75	+ Rated speed rpm : 350
Tolerance mm	: +- 0.05	+ Del. quantity
		+ cm3/10C0 strokes : 23.0
Start interlock		Tolerance
Peter speed spe	: > 100	+ cm3/1000 strokes : + 3.0 + Check tolerance
Rated speed rpm Rated speed rpm	-	+ cm3/1000s. : + 5.0
Nated Speed Pail		Spreed
Check		Tolerance
speed 1/min	; > 80	+ cm3/1000 strokes : 8.0
Check		+ Check tolerance
speed 1/min	: < 300	+ cm3/1000s. : 12.0
FUEL DELIVERY CHA	RACTERISTICS	<del>-</del>
Amanadal aasaassas		
Aneroid pressure hPa	: 1200	End of test specification sheet
Rated speed rpm		T End of test specification sneet
Del. quantity	. 050	Ţ
cm3/1000 strokes	: 169.5	1
Tolerance		<b></b>
cm3/1000 strokes	: <b>←</b> 3.0	+
Check tolerance		+
cm3/1000s.	: +- 6.0	+
Spreed		<del>†</del>
Tolerance		†
cm3/1000 strokes Check tolerance	: 8.0	<u>†</u>
cm3/1000s.	: 12.0	I
VIII./ 10003.	. 12.0	Ţ
Aneroid pressure		1
hPa	: -	+
Rated speed rpm	: 1100	+
•		•

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#### Note remarks

Refer to Service Info for test and edjustment instructions. See microcard(s) W400/...

Edition Test oil : 10.02.97 : ISO 4113

Combination No. : 0 402 746 615

Injection pump

Pump designation : PES6P120A320RS7419

EP type number : 0 412 726 961

Governor

Governer design. : RQV300...1250PA1289K

Governer no. : 0 421 815 520

Cust. part No. : 386 6800

Customer-spec. information Customer : CDC Motor : 6CTA

: 249.5 Power KW

# TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C Tolerance °C : **←** 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : Inlet press. bar : 2.0 Tolerance bar : ← 0.1

Test nozzle holde

: 1 688 901 103 assembly

Opening pressure

208.5 bar Tolerance bar : **←** 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# DEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : +- 1.0

Prestroke mm 3.60 : **←** 0.05 Tolerance mm

Check

tolerance mm : ← 0.10

Rack travel in mm: 10.50 Tolerance mm : **←** 1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

Tolerance : **←** 0.30

Check

tolerance \*NW : + 0.75

Start of delivery blocking

\*NW after s.o.d. : 12.25 : **←** 0.50 Tolerance

Check

tolerance \*NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm: 12.15

Tolerance mm :  $\leftarrow$  0.05

Del. quantity	+	Tolerance mm	: +- 0.25
cm3/1000 strokes :	190.0		0.2.
	1	Rated speed rpm	: 1710
Tolerance		guide sleeve	
cm3/1000 strokes :	<b>←</b> 10 ±	travel mm	; 13.50
cias, 1999 strokes .	1	Tolerance mm	
Check tolerance	I	rocerance iiii	0.50
	+ 4.0 I		
CMD7 10005,	T 4.0	FULL LOAD DELTWEE	RY AT FULL LOAD STOP
Spreed	I	LOCE FOND DECIME	RT AT PULL LUAD STOP
opi eed	I	Peted speed spe	. 1250
Tolerance	Ť	Rated speed rpm Ameroid pressure	: 1230
cm3/1000 strokes :	0.0		1200
cms/ rubu strokes :	7.0	nPa	: 1200
_		Del. quantity	444
Check tolerance	†	cm3/1000 strokes	: 190.0
cm3/1000s. :	12.0	Tolerance	_
	<del></del>	cm3/1000 strokes	: <del>←</del> 1.0
	+	Check tolerence	
	+	cm3/1000s.	: <del>+-</del> 4.0
Rated speed rpm :	300 +	Spreed	
·	1	Tolerance	
Rack travel in mm :	6.20	cm3/1000 strokes	: 8.0
Tolerance mm :		Check tolerance	
Del. quantity	1	cm3/1000s.	: 12.0
cm3/1000 strokes :	26.0		
Tolerance	1		
cm3/1000 strokes :	<b>-</b> 30 1		
Check tolerance	I	CONTROL LEVER	
cm3/1000s.	← 5.0 I	CONTROL LEVER	
	T 2.0 T	annanal laws	
Spreed	Ť	control lever	447.0
Tolerance	, t	position degree	
cm3/1000 strokes :	5.0	tolerance degree	: <b>←</b> 4.0
Check tolerance	<b>†</b>		
cm3/1000s. :	+ 0.3	RATED SPEED	
	+	rack travel mm	
	+	Rated speed rpm	
(B) SETTING OF INJECT	TION PUMP +	Tolerance 1/min	: <del>←</del> 5
WITH GOVERNOR	+		
	+	rack travel mm	: 4.00
		Rated speed rpm	: 1460
GUIDE SLEEVE TRAVEL	1	Tolerance 1/min	
	<u> </u>		
Rated speed rpm :	1372	rack travel mm	: 0.50
guide sleeve	+	Tolerance mm	: <b>←</b> 0.50
travel mm :	9.86	Rated speed rpm	
	← 0.15 +	opeed toll	
	1		
Rated speed rpm :	300		
guide sleeve	I		
travel nn :	1.29	LOW IDLE	
Tolerance mm :	← 0.20 I	COM INCE	
i Oter carite into	· · · · · · · · · · · · · · · · · · ·		
Datad sand and	1		
Rated speed rpm :	917 +	control lever	75.0
guide sleeve	t	position degree	
travel mm :	6.76	tolerance degree	: ← 4.0
Tolerance mm :	<b>←</b> 0.25 +		
	+	Control lever dif	
Rated speed rpm :	590	Grad	: 42.0
guide sleeve	1	tolerance degree	<del>-</del>
travel mm :	4.95		
•			

Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 300 : 6.20 : ← 0.20
Rated speed rpm	: 250
CRT mm min.	: > 7.00
Rated speed rpm	: 450
TORQUE CONTROL	
Rated speed rpm rack travel mm Tolerance mm	: 1250 : 12.15 : ← 0.05
Rated speed rpm rack travel mm Tolerance mm	: 800 : 11.90 : ← 0.10
Rated speed rpm rack travel mm Tolerance mm	: 1100 : 12.10 : ← 0.10
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa	: 1250 : 1200

Rated speed rpm	: 1100
rack travel mm	: 12.10
Tolerance mm	: + 0.10
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm	: 1250
Pressure hPa	: 1200
Pressure hPa	: -
Rated speed rpm	: 1000
rack travel ma	: 9.70
Tolerance mm	: ← 0.20
MEASUREMENT	
Rated speed rpm	: 1250
Pressure hPa	: 560
rack travel mm	: 11.50
Tolerance mm	: ← 0.20
Pressure hPa	: 400
rack travel mm	: 10.70
Tolerance mm	: ← 0.20
Start interlock	

	Aneroid pressure			
	hPa .	:	•	1200
- [	Rated speed rpm	:		800
	Del. quantity			
1	cm3/1000 strokes	:		195.5
•	Tolerance			
(	cm3/1000 strokes	:	+-	3.0
	Check tolerance			
	cm3/1000s.	:	+-	6.0
	Spreed			
	Tolerance			
	cm3/1000 strokes	•		8.0
	Check tolerance			
1	cm3/1 <b>00</b> 0\$.	:		12.0
	Aneroid pressure			
	hPa	:		-
	Rated speed rom	:		1000
	Del. quantity			127.0
	cm3/1000 strokes	:		123.0
	Tolerance			1.0
	cm3/1000 strokes	•	-	1.0
	Check tolerance			7.0
1	cm3/1000s.	•	-	3.0
,	STARTING FUEL DEL	TV	EDV	

Rated speed rpm	: 100
rack travel mm	: 9.90
Tolerance mm Del. quantity	: ← 0.20
cm3/1000 strokes Tolerance	: 176.5
cm3/1000 strokes Check tolerance	: +- 20.0
cm3/1000s.	: <b>←</b> 25.0

:		300
:		26.0
:	+-	3.0
•	<b>+-</b> -	5.0
•		· · · ·
:		5.0
:		8.0
	•	: + : + : : : : : : : : : : : : : : : :

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 23,07,96 Edition Test oil : ISO 4113

Combination No. : 0 402 746 642

Injection pump

Pump designation : PES6P120A720RS7321 EP type number : 0 412 726 906

Governor

Governer design. : RQV325...900PA944

Governer no. : 0 421 815 455

Cust. part No. : 3136C5212-P16

Customer-space information Customer : MACK : E7-350 Motor

Power KW : 261.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C 40 Tolerance °C

Overflow valve : 2 417 413 084

Inlet press. bar : 2.8 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 103 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : ← 1.0

: 2.80 Prestroke mm : + 0.05 Tolerance mm Check

tolerance mm : **←** 0.10

Rack travel in mm : 12.00 Tolerance mm : + 1.00

Firing order : 1-5-3-6-2-

Phasing : **0-60-**120**-**180-240

Tolerance : **←** 0.30

Check

tolerance 'NW : ← 0.75

# Start of delivery blocking

Tolerance : **←** 0.50

Check

tolerance 'NW : **←** 0.75

: 1 Barrel no.

# BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 14.15 Tolerance mm : +- 0.05

Del. quantity cm3/1000 strokes : 319.5

M20

		1	
Tolerance cm3/1000 strokes	: + 1.0	control lever position degree tolerance degree	: 117.0 : +·· 6.0
Check tolerance cm3/1000s.	: 4.0	+ RATED SPEED + rack travel mm	: 13.10
Spreed		Rated speed rpm Tolerance 1/min	: 945
Tolerance cm3/1000 strokes	: 5.0	+ Check + speed 1/min	: +- 10
Check tolerance cm3/1000s.	: 9.0	rack travel mm Rated speed rpm Tolerance 1/min Check	: 4.00 : 1100 : +- 15
Rated speed rpm	: 340	speed 1/min	: +- 20
Rack travel in mm Tolerance mm Del. quantity	: 4.80 : ← 0.10	rack travel mm Tolerance mm Rated speed rpm	: 0.50 : ← 0.50 : 1200
cm3/1000 strokes Tolerance		‡	
cm3/1000 strokes Theck tolerance cm3/1000s. Spreed	: ← 3.0 : ← 5.0	LCW ICLE	
Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 8.0 : 12.0	control lever position degree tolerance degree Testing:	: 66.0 : + 6.0
(B) SETTING OF INJ WITH GOVERNOR	ECTION PUMP	Rated speed rpm rack travel mm Tolerance mm	: 340 : 4.80 : + 0.10
FULL LOAD DELIVERY	AT FULL LOAD STOP	Rated speed rpm	: 275
Rated speed rpm	: 900	CRT mm min.	: > 6.10
Aneroid pressure hPa Del. quantity	: 1200	Rated speed rpm	: 425
cm3/1000 strokes Tolerance	: 319.5	TORQUE CONTROL	
cm3/1000 strokes Check tolerance cm3/1000s. Spreed	: +- 1.0 : +- 4.0	Rated speed rpm rack travel mm Tolerance mm	: 900 : 14.15 : ← 0.05
Tolerance cm3/1000 strokes Check tolerance	: 5.0 : 9.0	Rated speed rpm rack travel mm Tolerance mm	: 625 : 13.55 : ← 0.10
cm3/1000s.	. 7.0	Rated speed rpm rack travel mm Tolerance mm	: 500 : 12.80 : ← 0.40
CONTROL LEVER		1	

ANEROID/ALTITUDE
COMPENSATOR TEST

#### SETTING

Rated speed rpm 900 Pressure hPa 1200

Pressure hPa 900 Rated speed rpm rack travel mm 8,60 Tolerance ma : +- 0.20

## **MEASUREMENT**

Rated speed rpm 900

Pressure hPa **a10** : 13.00 rack travel mm Tolerance mm : + 0.20

Pressure hPa 420 10.15 rack travel mm : **←** 0.05 Tolerance mm

#### Start interlock

Rated speed rpm ; > 160 Rated speed rpm : < 250

Check

speed 1/min : > 80 Check

speed 1/min : < 255

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa 1200 Rated speed rpm 625 Del. quantity 339.5 cm3/1000 strokes : Tolerance cm3/1000 strokes :  $\leftarrow$  3.0 Check tolerance

cm3/1000s.6.0 Spreed

Tolerance

cm3/1000 strokes : 8.0 Check tolerance

cm3/1000s. 12.0

Aneroid pressure

Rated speed rpm : 400 Del. quantity

cm3/1000 strokes : 171.0

Tolerance

cm3/1000 strokes : +-2.0

Check tolerance

cm3/1000s. : +-4.0

# STARTING FUEL DELIVERY

Rated speed rpm 100 : 20.50 : ← 1.00 rack travel mm Tolerance mm

Del. quantity

cm3/1000 strokes : 190.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  20.0

Check tolerance

cm3/1000s. : +- 30.0

### LOW IDLE

Rated speed rpm : 340 Del. quantity cm3/1000 strokes : 31.5 Tolerance cm3/1000 strokes : +-3.0 Check tolerance cm3/1000s. 5.0 Spreed Tolerance cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s.12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 23.07.96 : ISO 4113 Test oil

Combination No. : 0 402 746 976

Injection pump

Pump designation : PES6P120A720RS7323 EP type number : 0 412 726 907

Governor

Governer design. : RQV325...875FA909 Governer no. : 0 421 815 398

Cust. part No. : 313GC5213-P6

Customer-spec, information Customer : MACK : EMN7300 Motor : 223.0 Power KW

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C 40 : **←** 2.0 Tolerance °C

Overflow valve : 2 417 413 084

Inlet press. bar : 2.8 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : +- 1.0

Prestroke mm : 2.80
Tolerance mm : + 0.05 Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : ← 1.00

Firing order : 1-5-3-6-2-

Phasina : 0-60-120-180-240 Phasing Tolorance

: +- 0.30

Check

: **←** 0.75 tolerance \*NW

Start of delivery blocking

Tolerance : +- 0.50

Check

tolerance \*NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 875

Rack travel in mm: 12.85

Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 213.0

M23

Talanana	1
Tolerance - cm3/1000 strokes : +- 1.0 -	t control lever
11137 1333 317 317 317 317 317 317 317 3	position degree : 113.0
Check tolerance	tolerance degree : + 6.0
cm3/1000s. : +- 4.0	
	RATED SPEED
Spreed -	rack travel mm : 11.85
	Rated speed rpm : 920
Tolerance	Tolerance 1/min : +- 5
cm3/1000 strokes : 5.0	Check
Check tolerance -	speed 1/min : +- 10
cm3/1000s. : 9.0	rack travel mm : 4.00
	Rated speed rpm : 1090
	Tolerance 1/min : + 15
•	Check
Rated speed rpm : 325	speed 1/min : +- 20
	-
Rack travel in mm: 5.20	rack travel mm : 0.50
Tolorance mm : + 0.10	⊱ Toleranse ma : +− 0.50
Del. quantity - cm3/1000 strokes : 44.0 -	Rated speed rpm : 1200
Tolerance -	Ī
cm3/1000 strokes : +- 3.0	
Check tolerance	
$cm3/1000s.$ : $\leftarrow$ 5.0	LOW IDLE
Spreed	
Tolerance	1
cm3/1000 strokes : 8.0 -	control lever
Check tolerance	position degree : 65.0
cm3/1000s. : 12.0	tolerance degree : +- 6.0
7	rastina
(B) SETTING OF INJECTION PUMP	Testing:
WITH GOVERNOR	Rated speed rpm : 325
	rack travel mm : 5.20
-	Tolerance mm : + 0.10
	+
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 275
Dated and an and an an an analysis	007
Rated speed rpm : 875 Aneroid pressure	CRT mm min. : > 6.50
hPa : 1200	Rated speed rpm : 425
Del. quantity	nated operation . 427
cm3/1000 strokes : 213.0	
Tolerance	TORQUE CONTROL
cm3/1000 strokes : + 1.0	+
Check tolerance	Rated speed rpm : 875
cm3/1000s. : $\leftarrow$ 4.0	rack travel mm : 12.85
Spreed	Tolerance mm : +- 0.05
Tolerance -	Pakadanadan 540
cm3/1000 strokes : 5.0	Rated speed rpm : 510 rack travel mm : 14.15
Check tolerance - cm3/1000s. : 9.0	rack travel mm : 14.15 Tolerance mm : +- 0.10
VIII./ (OUU3 7.U	
	Rated speed rpm : 400
	rack travel mm : 13.50
CONTROL LEVER	Tolerance mm : +- 0.20
	}

ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Reted speed rom Pressure hPa	: 510 : 1260
Pressure hPa Rated speed rpm rack travel mm Tolerance mm	
MEASUREMENT	
Rated speed rpm	: 510
Pressure hPa rack travel mm Tolerance mm	: 785 : 13.10 : ← 0.20
Pressure hPa rack travel mm Tolerance mm	: 370 : 9.90 : +- 0.05
St <b>a</b> rt interlock	
Rated speed rpm Rated speed rpm	: > 100 : < 275
Check speed 1/min Check	; > 80
speed 1/min	: < 285
DIEL DELTUENN OUT	
Aneroid pressure hPa	RACTERISTICS: 1200
Aneroid pressure hPa Rated speed rpm	
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes	: 1200
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 1200 : 510
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed	: 1200 : 510 : 295.5
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes	: 1200 : 510 : 295.5 : + 3.0
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance	: 1200 : 510 : 295.5 : + 3.0 : + 6.0
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance	: 1200 : 510 : 295.5 : + 3.0 : + 6.0 : 8.0

Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	
STARTING FUEL DEL	IVERY
Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	
LOW IDLE	
Rated speed rpm	: 325
Del. quantity cm3/1000 strokes	: 44.0
Tolerance cm3/1000 strckes	: <b>←</b> 3.0
Check tolerance cm3/1000s. Spreed	: +- 5.0
Tolerance cm3/1000 strckes	: 8.0
Check tolerance cm3/1000s.	: 12.0

## Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 23.07.96 Test oil : ISO 4113

Combination No. : 0 402 746 980

Injection pump

Pump designation : PES6P120A320LS7328 EP type number : 0 412 726 908

Governor

Governmen design. : RQV350...1250PA1136K

Governer no. : 0 421 815 402

Cust. part No. : 1823108091

Customer-spec. information Customer : NAVISTAR : DTA-408 Motor

Power KW

: 171.5

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C Tolerance °C : +- 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

208.5 bar Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm 2.90 : +- 0.05 Tolerance mm

Check

tolerance mm : +- 0.10

Rack travel in mm : 11.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 4

Prasing : 0-60-120-180-240

Tolerance : **←** 0.30

Check

tolerance \*NW : + 0.75

Start of delivery blocking

: **←** 0.50 Tolerance

Check

tolerance \*NW : +- 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 13.25 Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 175.0

_	+	Tolerance	
Tolerance		cm3/1000 strokes	: 8.0
cm3/1000 strokes :	+ 1.0 +	Check tolerance	. 3.3
	<u></u>	cm3/1000s.	: 12.0
Check tolerance	+		
cm3/1000s. :	<b>←</b> 4.0 <b>+</b>		
_	<del> </del>		
Spreed	+	CONTROL LEVER	
	†		
Tolerance	†	control lever	(5.0
cm3/1000 strokes :	8.0	position degree	
Charle dallarana		tolerance degree	: +- 4.0
Check tolerance :	12.0	aanbuul lavaa	
cm3/1000s. :	12.0	control lever	140.0
•		position degree	
	· T	tolerance degree	: +- 0.0
Rated speed rpm :	725	RATED SPEED	
	I	rack travel mm	• 12 30
Rack travel in mm :	6.70 <u>I</u>	Rated speed upm	: 1235
Tolerance mm :		Tolerance 1/min	: + 15
Del. quantity	I.	TOTAL GIRE TAILER	
cm3/1000 strokes :	27.0	rack travel mm	: 4.00
Tolerance	1	Rated speed rpm	
cm3/1000 strokes :	+ 3.0	Tolerance 1/min	
Check tolerance	1		
	<b>←</b> 5.0 <b>∔</b>	rack travel mm	: 0.50
Spreed	+	Tolerance mm	
Tolerance	+	Rated speed rpm	
cm3/1000 strokes :	5.0		
Check tolerance			
cm3/1000s. :	9.0		
	+		
4=1	+	LOW IDLE	
(D) CETTING OF INLES	TION DIMP I		
(B) SETTING OF INJEC	12014 1-014		
WITH GOVERNOR	11000 1011		
		control lever	75.0
		position degree	
WITH GOVERNOR			
		position degree tolerance degree	
WITH GOVERNOR  GUIDE SLEEVE POSITIO	N	position degree tolerance degree control lever	: ← 6.0
WITH GOVERNOR  GUIDE SLEEVE POSITIO	N	position degree tolerance degree control lever position degree	: ← 6.0 : 16.5
WITH GOVERNOR  GUIDE SLEEVE POSITIO  Rated speed rpm :	N 1440	position degree tolerance degree control lever	: ← 6.0 : 16.5
WITH GOVERNOR  GUIDE SLEEVE POSITIO  Rated speed rpm :  Rack travel in mm :	N 1440 12.30	position degree tolerance degree control lever position degree tolerance degree	: ← 6.0 : 16.5
WITH GOVERNOR  SUIDE SLEEVE POSITIO  Rated speed rpm :  Rack travel in mm :	N 1440 12.30	position degree tolerance degree control lever position degree	: ← 6.0 : 16.5
WITH GOVERNOR  GUIDE SLEEVE POSITIO  Rated speed rpm :  Rack travel in mm :	N 1440 12.30	position degree tolerance degree control lever position degree tolerance degree Testing:	: + 6.0 : 16.5 : + 4.0
WITH GOVERNOR  SUIDE SLEEVE POSITIO  Rated speed rpm :  Rack travel in mm :  Tolerance mm :	N 1440 12.30 + 1.30	position degree tolerance degree control lever position degree tolerance degree Testing:  Rated speed rpm	: +- 6.0 : 16.5 : +- 4.0 : 325
SUIDE SLEEVE POSITIO Rated speed rpm : Rack travel in mm : Folerance mm :	N 1440 12.30 + 1.30	position degree tolerance degree control lever position degree tolerance degree Testing:  Rated speed rpm	: +- 6.0 : 16.5 : +- 4.0 : 325
WITH GOVERNOR  GUIDE SLEEVE POSITIO  Rated speed rpm :  Rack travel in mm :  Folerance mm :	N 1440 12.30 + 1.30 T FULL LOAD STOP	position degree tolerance degree control lever position degree tolerance degree Testing:	: +- 6.0 : 16.5 : +- 4.0 : 325
WITH GOVERNOR  GUIDE SLEEVE POSITIO  Rated speed rpm :  Rack travel in mm :  Folerance mm :  FULL LOAD DELIVERY A  Rated speed rpm :  Aneroid pressure	N 1440 12.30 + 1.30  T FULL LOAD STOP 1150	position degree tolerance degree control lever position degree tolerance degree Testing:  Rated speed rpm rack travel mm Tolerance mm	: +- 6.0 : 16.5 : +- 4.0 : 325 : 6.70 : +- 0.10
WITH GOVERNOR  GUIDE SLEEVE POSITIO  Rated speed rpm :  Rack travel in mm :  Folerance mm :  FULL LOAD DELIVERY A  Rated speed rpm :  Aneroid pressure	N 1440 12.30 + 1.30  T FULL LOAD STOP 1150	position degree tolerance degree control lever position degree tolerance degree Testing:  Rated speed rpm	: +- 6.0 : 16.5 : +- 4.0 : 325 : 6.70 : +- 0.10
WITH GOVERNOR  GUIDE SLEEVE POSITIO  Rated speed rpm :  Rack travel in mm :  Tolerance mm :  FULL LOAD DELIVERY A  Rated speed rpm :  Aneroid pressure  nPa :	N 1440 12.30 + 1.30 T FULL LOAD STOP	position degree tolerance degree control lever position degree tolerance degree Testing:  Rated speed rpm rack travel mm Tolerance mm	: +- 6.0 : 16.5 : +- 4.0 : 325 : 6.70 : +- 0.10 : 275
WITH GOVERNOR  GUIDE SLEEVE POSITIO  Rated speed rpm :  Rack travel in mm :  Tolerance mm :  FULL LOAD DELIVERY A  Rated speed rpm :  Aneroid pressure  nPa :  Del. quantity	N  1440  12.30  1.30  T FULL LOAD STOP  1150  1500	position degree tolerance degree control lever position degree tolerance degree Testing:  Rated speed rpm rack travel mm Tolerance mm	: +- 6.0 : 16.5 : +- 4.0 : 325 : 6.70 : +- 0.10 : 275
WITH GOVERNOR  GUIDE SLEEVE POSITIO  Rated speed rpm :  Rack travel in mm :  Tolerance mm :  FULL LOAD DELIVERY A  Rated speed rpm :  Aneroid pressure  hPa :  Del. quantity  cm3/1000 strokes :  Tolerance	N 1440 12.30 + 1.30  T FULL LOAD STOP 1150 1500 175.0	position degree tolerance degree control lever position degree tolerance degree Testing:  Rated speed rpm rack travel mm Tolerance mm	: +- 6.0 : 16.5 : +- 4.0 : 325 : 6.70 : +- 0.10 : 275 : > 7.50
WITH GOVERNOR  GUIDE SLEEVE POSITIO  Rated speed rpm :  Rack travel in mm :  Folerance mm :  FULL LOAD DELIVERY A  Rated speed rpm :  Aneroid pressure  nPa :  Del. quantity  cm3/1000 strokes :  Folerance	N 1440 12.30 + 1.30  T FULL LOAD STOP 1150 1500 175.0	position degree tolerance degree control lever position degree tolerance degree Testing:  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm	: +- 6.0 : 16.5 : +- 4.0 : 325 : 6.70 : +- 0.10 : 275 : > 7.50
WITH GOVERNOR  GUIDE SLEEVE POSITIO  Rated speed rpm :  Rack travel in mm :  Tolerance mm :  FULL LOAD DELIVERY A  Rated speed rpm :  Aneroid pressure  hPa :  Del. quantity  cm3/1000 strokes :  Tolerance  cm3/1000 strokes :  Check tolerance	N 1440 12.30 + 1.30  T FULL LOAD STOP 1150 1500 175.0 + 1.0	position degree tolerance degree control lever position degree tolerance degree Testing: Rated speed rpm rack travel mm Tolerance mm Rated speed rpm CRT mm min. Rated speed rpm	: +- 6.0 : 16.5 : +- 4.0 : 325 : 6.70 : +- 0.10 : 275 : > 7.50
GUIDE SLEEVE POSITIO Rated speed rpm : Rack travel in mm : Tolerance mm : FULL LOAD DELIVERY A Rated speed rpm : Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 strokes : Check tolerance cm3/1000s. :	N 1440 12.30 + 1.30  T FULL LOAD STOP 1150 1500 175.0 + 1.0	position degree tolerance degree control lever position degree tolerance degree Testing:  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm	: +- 6.0 : 16.5 : +- 4.0 : 325 : 6.70 : +- 0.10 : 275 : > 7.50
WITH GOVERNOR  GUIDE SLEEVE POSITIO  Rated speed rpm :  Rack travel in mm :  Tolerance mm :  FULL LOAD DELIVERY A  Rated speed rpm :  Aneroid pressure  hPa :  Del. quantity  cm3/1000 strokes :	N 1440 12.30 + 1.30  T FULL LOAD STOP 1150 1500 175.0 + 1.0	position degree tolerance degree control lever position degree tolerance degree Testing: Rated speed rpm rack travel mm Tolerance mm Rated speed rpm CRT mm min. Rated speed rpm	: +- 6.0  : 16.5 : +- 4.0  : 325 : 6.70 : +- 0.10 : 275 : > 7.50 : 425

rack travel mm Tolerance mm	: 13.25 : + 0.05
Rated speed rpm rack travel mm Tolerance mm	: 850 : 12.50 : + 0.10
Rated speed rpm rack travel mm Tolerance mm	: 1250 : 13.35 : ← 0.10
Rated speed rpm rack travel mm Tolerance mm	: 650 : 11.90 : + 0.20
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa	: 1250 : 15 <b>00</b>
Pressure hPa Rated speed rpm rack travel mm Tolerance mm	: - : 1250 : 9.80 : + 0.20
MEASUREMENT	
Rated speed rpm	: 1250
Pressure hPa rack travel mm Tolerance mm	: 970 : 12.50 : ← 0.20
Pressure hPa rack travel mm Tolerance mm	: 435 : 11.00 : ← 0.05
Start interlock	
Rated speed rpm Rated speed rpm	: > 100 : < 280
Check speed 1/min Check	: > 80
speed 1/min	: < 290
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure hPa Rated speed rpm	: 1500 : 850
Del. quantity cm3/1000 strokes	

Tolerance			
cm3/1000 strokes	:	+-	3.0
Check tolerance			
cm3/10GOs.	:		6.0
Spreed			
Tolerance			
cm3/1000 strokes	:		8.0
Check tolerance			
cm3/1000s.			12.0
Aneroid pressure			
hPa	:		
Rated speed rpm	:	1	250
Del. quantity			
cm3/1000 strokes	:		93.0
Tolerance			
cm3/1000 strokes	:	+-	2.0
Check tolerance			
cm3/1000s.	:	+-	4.0

STARTING FUEL DEL	.IVI	ERY	
Rated speed rpm rack travel mm Tolerance mm	:	+	100 20.50 1.00
Del. quantity cm3/1000 strokes	:		130.0
Tolerance cm3/1000 strokes	:	+-	20.0
Check tolerance cm3/1000s.	:	+	30.0

LOW IDLE	
Rated speed rpm	: 325
Del. quantity cm3/1000 strokes	: 27.0
Tolerance cm3/1000 strokes	: <del></del>
Check tolerance cm3/1000s.	: <b>←</b> 5.0
Spreed	
Tolerance cm3/1000 strokes	: 5.0
Check tolerance cm3/1000s.	: 9.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil : ISO 4113

: 23.07.26

Combination No. : 0 402 746 982

Injection pump

Pump designation : PES6P120A320LS7322

EP type number : 0 412 726 904

Governor

Governer design. : RQV350...1000PA1135K

Governer no. : 0 421 815 404

Cust. part No. : 1823153091

Customer-spec. information Customer : NAVISTAR : DTA-531 Motor Power KW : 205.0

TEST BENCH REQUIREMENTS

Inlet line : 2.4

Test oil inlet

temp. °C Tolerance °C : +- 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : 2.8 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : +- 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : +- 1.0

Prestroke mm : 2.90 Tolerance mm : + 0.05 Check : + 0.10 tolerance am

Rack travel in mm : 11.50 Tolerance mm : ← 1.50

Firing order : 1-5-3-6-2-

: 4

rnasing : 0-60-120-180-240
Tolerance : +- 0 30

Check

tolerance \*NW : + 0.75

Start of delivery blocking

Tolerance :  $\leftarrow$  0.50 Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm: 14.45 Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 220.0

NO1

Tolerance cm3/1000 strokes :	<b>←</b> 1.0	control lever position degree	: 120.0
Check tolerance cm3/1000s.	<i>←</i> 4.0	tolerance degree	
Spreed		RATED SPEED rack travel mm Rated speed rpm	
Tolerance cm3/1000 strokes :	8.0	Tolerance 1/min	: + 15
Check tolerance cm3/1000S. :	12.0	rack travel mm Rated speed rpm Tolerance 1/min	
Rated speed rpm :	325	rack travel mm Tolerarice mm Rated speed rpm	: 0.50 : ← 0.50 : 1250
Rack travel in mm : Tolerance mm :	6.00	There open the	. 1230
Del. quantity cm3/1000 strokes : Tolerance	21.5	LOW IDLE	
cm3/1000 strokes :	<b>←</b> 3.0	+	
Check tolerance cm3/1000S. : Spreed	<b>←</b> 5.0	<ul><li>control lever</li><li>position degree</li><li>tolerance degree</li></ul>	
Tolerance cm3/1000 strokes : Check tolerance	5.0	Testing:	
cm3/1000s. :	9.0	Rated speed rpm	: 5.0C
(B) SETTING OF INJE	CTION PUMP	Tolerance mm Rated speed rpm	
		CRT mm min.	: > 7.00
FULL LOAD DELIVERY	AT FULL LOAD STOP	Rated speed rpm	: 425
Aneroid pressure	1000	TORQUE CONTROL	
hPa : Del. quantity	1200	+ Rated speed rpm	• 1000
cm3/1000 strokes : Tolerance	220.0	rack travel mm Tolerance mm	
cm3/1000 strokes :	<b>+</b> 1.0	+	
Check tolerance cm3/1000s. :	<b>←</b> 4.0	Rated speed rpm rack travel mm Tolerance mm	: 650 : 14.10 : + 0.10
Tolerance cm3/1000 strokes :	8 0	Poted anad man	. 500
Check tolerance	12.0	+ Rated speed rpm + rack travel mm + Tolerance mm	
CONTROL LEVER		ANEROID/ALTITUDE COMPENSATOR TEST	

#### SETTING

Rated speed rpm	:	1000
Pressure hPa	:	1200

Pressure hPa Rated speed rpm : 1000 rack travel mm : 10.40 : +- 0.20 Tolerance mm

#### **MEASUREMENT**

Rated	speed	rpm	:	1000
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Pressure hPa : 550 rack travel mm : 13.30 : + 0.20 Tolerance mm

Pressure hPa : 290 rack travel mm : 11.55 Tolerance mm : +- 0.05

## Start interlock

Rated speed rpm : > 100 Reted speed rom : < 280

Check

speed 1/min : > 80 Check

290 speed 1/min : <

# FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

1200 Rated speed rpm : 650 Del. quantity cm3/1000 strokes : 241.0 Tolerance cm3/1000 strokes : +- 3.0 Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance 8.0

cm3/1000 strokes : Check tolerance cm3/1000s. 12.0

Aneroid pressure

hPa Rated speed rpm : 1000 Del. quantity cm3/1000 strokes : 125.5

Tolerance

cm3/1000 strokes :  $\leftarrow$  2.0

Check tolerance

cm3/1000s.: **←** 4.0

#### STARTING FUEL DELIVERY

Rated speed rpm	:	100
rack travel mm	:	20.50
Tolerance mm	: +-	1.00
Del. quantity		
cm3/1000 strokes	:	130.0
Tolerance		
cm3/1000 strokes	: +-	20.0
Check tolerance		
cm3/1000s.	: +-	30.0

## LOW IDLE

Rated speed rpm Del. quantity	:		325
cm3/1000 strokes	:		21.5
Tolerance cm3/1000 strokes	:	+	3.0
Check tolerance cm3/1000S.		-;	5.0
Spreed	•		J.0
Tolerance cm3/1000 strokes	:		5.0
Check tolerance cm3/1000s.	:		9.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Ecition : 23.07.96
Test oil : ISO 4113

: 23.07.96

Combination No. : 0 402 746 983

Injection pump

Pump designation : PES6P120A320LS7328 EP type number : 0 412 726 908

Governor

Governer design. : RQV350...1250PA1137K

Governer no. : 0 421 815 405

Cust. part No. : 1823107091

Customer-spec. information Customer : NAVISTAR : DTA-408 Motor Power KW : 157.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : + 2.0 Tolerance °C

Overflow valve : 2 417 413 076

Inlet press. bar : 2.8
Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : +- 1.0

Prestroke mm : 2.90 Tolerance mm : + 0.05 Check

tolerance mm : +- 0.10

Rack travel in mm: 11.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240 Tolerance : +- 0.30

Check

tolerance \*NW : + 0.75

Start of delivery blocking

Tolerance : +- 0.50

Check

tolerance 'NW : <del>+-</del> 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm: 12.55 Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 158.5

Deck tolerance   Cm2/1000s.	Tolerance cm3/1000 strokes	: <b>←</b> 1.0	control lever	. 110.0
Spreed   Tolerance   Tolera		: ← 4.6		
Tolerance 1/min : ← 15  Check tolerance cm3/1000s: 12.0  Rated speed rpm : 335  Rack travel in mm : 6.60 Tolerance mm : ← 0.10 Cet. onentity Check tolerance Cm3/1000s strokes : 24.0 Tolerance mm : ← 0.10 Cet. onentity Check tolerance Cm3/1000s strokes : ← 3.0 Check tolerance Cm3/1000s strokes : ← 5.0 Spreed Tolerance mm : ← 0.10 Cet. onentity Condition Check tolerance Cm3/1000s strokes : ← 5.0 Spreed Tolerance Cm3/1000s strokes : 5.0 Check tolerance Cm3/1000s strokes : ← 5.0 Check tolerance Cm3/1000s strokes : 5.0 Check tolerance Cm3/1000s strokes : 5.0 Check tolerance Cm3/1000s strokes : 5.0 Check tolerance Cm3/1000s strokes : 5.0 Check tolerance Cm3/1000s strokes : 5.0 Check tolerance Cm3/1000s strokes : 5.0  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1150 Aneroid pressure Pape : 1500 Det. quantity Cm3/1000s strokes : 158.5 Tolerance Cm3/1000s strokes : + 1.0 Check tolerance Cm3/1000s strokes : + 4.0 Spreed Tolerance Cm3/1000s strokes : 8.0 Check tolerance Cm3/1000s strokes :	Spreed		rack travel mm	
Check tolerance cm3/1000s.         : 12.0         Rated speed rpm : 1435 Tolerance 1/min : → 5           Rated speed rpm : 335         . 12.0         rack travel mm : 0.50 Tolerance mm : → 0.50 Rated speed rpm : 1525           Rack travel in mm : 6.60 Tolerance mm : → 0.10 Del. quantity cm3/1000 strokes : 24.0 Tolerance cm3/10000 strokes : → 3.0 Check tolerance cm3/10000s. : → 5.0 position degree : → 6.0 Tolerance degree : → 6.0 Tolerance degree : → 6.0 Tolerance cm3/1000s. : 9.0 Rated speed rpm : 335 rack travel mm : 6.60 Tolerance cm3/1000s. : 9.0 Rated speed rpm : 335 rack travel mm : → 0.10           (B) SETTINS OF INJECTION PUMP WITH GOVERNOR         Rated speed rpm : 275           FULL LOAD DELIVERY AT FULL LOAD STOP         Rated speed rpm : 425           Rated speed rpm : 1150 Aneroid pressure hPB cl. quantity cm3/1000 strokes : 158.5 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 rack travel mm : 12.55 Tolerance mm : → 0.05 Tolerance mm : → 0.05 Tolerance mm : → 0.05 Tolerance mm : → 0.05 Tolerance mm : → 0.10 Tolerance mm : → 0.10 Tolerance mm : → 0.10 Tolerance mm : → 0.10 Tolerance mm : → 0.10 Tolerance mm : → 0.20 Rated speed rpm : 650 rack travel mm : 11.75 Tolerance mm : → 0.20 Rated speed rpm : 650 rack travel mm : 11.10 Tolerance mm : → 0.20 Rated speed rpm : 650 rack travel mm : 11.10 Tolerance mm : → 0.20 Rated speed rpm : 650 rack travel mm : 11.10 Tolerance mm : → 0.20 Rated speed rpm : 1225		: 8.0	† Tolerance 1/min	: +- 15
Rated speed rpm : 335  Rack travel in mm : 6.60 Tolerance mm : + 0.10  Del. quantity cm3/1000 strokes : 24.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s strokes : 5.0 Check tolerance cm3/1000s strokes : 5.0 Check tolerance cm3/1000s strokes : 9.0  Rated speed rpm : 335  Tolerance mm : + 0.50  Rated speed rpm : 335  Rated speed rpm : 335  Rated speed rpm : 335  Rated speed rpm : 275  CRT mm min. : > 7.50  Rated speed rpm : 1150  Aneroid pressure hPa : 1506  Del. quantity cm3/1000 strokes : + 1.0 Check tolerance cm3/1000 strokes : 158.5 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000 strokes : 8.0  Rated speed rpm : 850 rack travel mm : 11.75 Tolerance mm : + 0.10  Rated speed rpm : 650 rack travel mm : 11.75 Tolerance mm : + 0.20  Rated speed rpm : 650 rack travel mm : 11.10 Tolerance mm : + 0.20  Rated speed rpm : 650 rack travel mm : 11.10 Tolerance mm : + 0.20		: 12.0	+ Rated speed rpm	: 1435
Tolerance mm : + 0.10  Del. quantity	Rated speed rpm	: 335	Tolerance mm:	: <b>←</b> 0.50
cm3/1000 strokes : 24.6       LOW IDLE         Tolerance cm3/1000 strokes : + 3.0       control lever position degree : 77.0 spread         Tolerance cm3/1000s. : + 5.0       position degree : + 6.0         Tolerance cm3/1000 strokes : 5.0       Testing:         Check tolerance cm3/1000s. : 9.0       Rated speed rpm : 335 rack travel mm : 6.60 Tolerance mm : + 0.10         (B) SETTING OF INJECTION PUMP       Rated speed rpm : 275         WITH GOVERNOR       Rated speed rpm : 275         FULL LOAD DELIVERY AT FULL LOAD STOP       Rated speed rpm : 425         Rated speed rpm : 1500       TORQUE CONTROL         Del. quantity cm3/1000 strokes : 158.5       Tolerance mm : + 0.05         Cm3/1000 strokes : 4.0       Rated speed rpm : 850 rack travel mm : 11.75 Tolerance mm : + 0.10         Tolerance cm3/1000 strokes : 8.0       Rated speed rpm : 650 rack travel mm : 11.75 Tolerance mm : + 0.10         Tolerance cm3/1000 strokes : 8.0       Rated speed rpm : 650 rack travel mm : 11.10 Tolerance mm : + 0.20         Rated speed rpm : 650 rack travel mm : 11.10 Tolerance mm : + 0.20	Tolerance mm		‡	
cm3/1000 strokes : + 3.0       Check tolerance       control lever         cm3/1000s. : + 5.0       control lever         Spreed       tolerance degree : + 6.0         Tolerance       tolerance degree : + 6.0         cm3/1000 strokes : 5.0       Testing:         Check tolerance       Rated speed rpm : 335         cm3/1000s. : 9.0       Rated speed rpm : 335         rack travel mm : 6.60       Tolerance mm : + 0.10         (B) SETTINS OF INJECTION PUMP WITH GOVERNOR       Rated speed rpm : 275         FULL LOAD DELIVERY AT FULL LOAD STOP       Rated speed rpm : 425         Rated speed rpm : 1150       TORQUE CONTROL         Aneroid pressure hPa : 150C       Rated speed rpm : 1150         Del. quantity cm3/1000 strokes : 158.5       Tolerance max : 12.55         Tolerance cm3/1000 strokes : + 1.0       Rated speed rpm : 850         Cm3/1000 strokes : + 4.0       Rated speed rpm : 850         Tolerance mm : + 0.10         Tolerance mm : + 0.10         Tolerance mm : + 0.10         Tolerance mm : + 0.20         Rated speed rpm : 650         rack travel mm : 11.10         Tolerance mm : + 0.20         Rated speed rpm : 650         Rated speed rpm : + 0.20	cm3/1000 strokes	: 24.0	LOW IDLE	er kalandulliten. Palitakonda erman hillin kansa kulup ulmus matan upua .
Tolerance cm3/1000 strokes : 5.0	cm3/1000 strokes Check tolerance cm3/1000s.		position degree	
Rated speed rpm : 335   rack travel mm : 6.60	Tolerance cm3/1000 strokes	: 5.0	+	0.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR  Rated speed rpm : 275  CRT mm min. : > 7.50  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1150  Aneroid pressure hPa : 150C Del. quantity cm3/1000 strokes : 158.5  Tolerance cm3/1000 strokes : + 1.0  Check tolerance cm3/1000S. : + 4.0  Tolerance mm : 11.75 Spreed  Tolerance cm3/1000 strokes : 8.0  Rated speed rpm : 850 rack travel mm : 11.75 Tolerance mm : + 0.10  Rated speed rpm : 650 rack travel mm : 11.10 Tolerance mm : + 0.20  Rated speed rpm : 650 Rated speed rpm : 650 rack travel mm : 11.10 Tolerance mm : + 0.20  Rated speed rpm : 650 Rated speed rpm : 650 rack travel mm : 11.10 Tolerance mm : + 0.20		: 9.0	rack travel mm	: 6.60
FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1150  Aneroid pressure hPa : 150C Del. quantity cm3/1000 strokes : 158.5  Tolerance cm3/1000s. : ← 4.0  Tolerance cm3/1000 strokes : 8.0  Check tolerance cm3/1000 strokes : 8.0  Check tolerance cm3/1000 strokes : 8.0  Rated speed rpm : 425  ToRQUE CONTROL  Rated speed rpm : 1150 rack travel mm : 12.55 Tolerance mm : ← 0.05  Rated speed rpm : 850 rack travel mm : 11.75 Tolerance mm : ← 0.10  Rated speed rpm : 650 Rated speed rpm : 650 rack travel mm : 11.10 Tolerance mm : ← 0.20  Rated speed rpm : 1225		JECTION PUMP	+	
Rated speed rpm : 1150  Aneroid pressure hPa : 150C  Del. quantity cm3/1000 strokes : 158.5  Tolerance cm3/1000s : + 4.0  Check tolerance cm3/1000 strokes : 8.0  Check tolerance cm3/1000 strokes : 8.0  Check tolerance cm3/1000 strokes : 12.0  Rated speed rpm : 1150 rack travel mm : 12.55 Tolerance mm : + 0.05  Rated speed rpm : 850 rack travel mm : 11.75 Tolerance mm : + 0.10  Rated speed rpm : 650 rack travel mm : 11.10 Tolerance mm : + 0.20  Rated speed rpm : 650 rack travel mm : 11.10 Tolerance mm : + 0.20			CRT mm min.	: > 7.50
Aneroid pressure hPa : 150C  Del. quantity cm3/1000 strokes : 158.5  Tolerance cm3/1000 strokes : + 1.0  Check tolerance cm3/1000s. : + 4.0  Tolerance cm3/1000 strokes : 8.0  Check tolerance cm3/1000 strokes : 8.0  Rated speed rpm : 850 rack travel mm : 11.75 Tolerance mm : + 0.10  Rated speed rpm : 650 rack travel mm : 11.10 Tolerance mm : + 0.20  Rated speed rpm : 650 Rated speed rpm : 650 rack travel mm : 11.10 Tolerance mm : + 0.20			Rated speed rpm	: 425
Del. quantity cm3/1000 strokes : 158.5  Tolerance cm3/1000 strokes : + 1.0  Check tolerance cm3/1000s. : + 4.0  Spreed  Tolerance cm3/1000 strokes : 8.0  Check tolerance cm3/1000 strokes : 8.0  Check tolerance cm3/1000 strokes : 12.0  Rated speed rpm : 850 rack travel mm : 11.75 Tolerance mm : + 0.10  Rated speed rpm : 650 Rated speed rpm : 11.10 Tolerance mm : + 0.20  Rated speed rpm : 1225	Aneroid pressure		TORQUE CONTROL	
cm3/1000 strokes : + 1.0       Rated speed rpm : 850         cm3/1000s. : + 4.0       rack travel mm : 11.75         Spreed       Tolerance mm : + 0.10         Tolerance       Rated speed rpm : 650         Check tolerance       rack travel mm : 11.10         cm3/1000s. : 12.0       Rated speed rpm : 650         Rated speed rpm : 1225	Del. quantity cm3/1000 strokes		+ rack travel mm	: 12.55
Spreed       + Tolerance mm       : ← 0.10         Tolerance       + Rated speed rpm       : 650         Check tolerance       + rack travel mm       : 11.10         cm3/1000s       : 12.0       + Rated speed rpm       : ± 0.20         Rated speed rpm       : 1225	cm3/1000 strokes Check tolerance		Rated speed rpm	: 850
cm3/1000 strokes :       8.0       + Rated speed rpm :       650         Check tolerance cm3/1000s. :       12.0       + Tolerance mm :       + 0.20         Rated speed rpm :       1225	Spreed	: +- 4.0		
+ Rated speed rpm : 1225	cm3/1000 strokes Check tolerance		Rated speed rpm rack travel mm	: 650 : 11.10
rack travel mm : 12.70  CONTROL LEVER Tolerance mm : + 0.10	cm3/1000S.	: 12.0	+	
·	CONTROL LEVER		rack travel mm Tolerance mm	: 12.70 : + 0.10

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ANERCID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa	: 1225 : 1500
Pressure hPa Rated speed rpm rack travel mm Tolerance mm	
MEASUREMENT	
Rated speed impin	: 1225
Pressure hPa rack travel mm Tolerance mm	: 850 : 12.00 : ← 0.20
Pressure hPa rack travel mm Tolerance mm	: 420 : 10.45 : ← 0.05
St <b>ar</b> t interlock	
Rated speed rpm Rated speed rpm	: > 100 : < 280
Check speed 1/min Check	: > 80
speed 1/min	: < 290
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure hPa	: 1500
Rated speed rpm Del. quantity	: 850
cm3/1000 strokes Tolerance	: 141.0
cm3/1000 strokes Check tolerance	: ← 3.0
cm3/1000s. Spreed	: +- 6.0
Tolerance cm3/1000 strokes Check tolerance	: 8.0
cm3/1000s.	: 12.0
Aneroid pressure	: -
Rated speed rpm	: 1150

Toterance cm3/1000 strokes : + 2.0 Check tolerance cm3/1000s. : + 4.0  STARTING FUEL DELIVERY  Rated speed rpm : 100 rack travel mm : 21.00 Tolerance mm : + 1.00 Del. quantity cm3/1000 strokes : 130.0 Tolerance cm3/1000 strokes : + 20.0 Check tolerance cm3/1000s. : + 30.0  LOW IDLE  Rated speed rpm : 335 Del. quantity cm3/1000 strokes : 24.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000 strokes : + 5.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0	Del. quantity cm3/1000 strokes	: 95.0
<pre>cm3/1000S. : ← 4.0  STARTING FUEL DELIVERY  Rated speed rpm : 100 rack travel mm : 21.00 Tolerance mm : ← 1.00 Del. quantity cm3/1000 strokes : 130.0 Tolerance cm3/1000 strokes : + 20.0 Check tolerance cm3/1000S. : ← 30.0  LOW IDLE  Rated speed rpm : 335 Del. quantity cm3/1000 strokes : 24.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000 strokes : + 5.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance</pre>		: ← 2.0
Rated speed rpm : 100 rack travel mm : 21.00 Tolerance mm : + 1.00 Del. quantity cm3/1000 strokes : 130.0 Tolerance cm3/1000 strokes : + 20.0 Check tolerance cm3/1000s. : + 30.0  LOW IDLE  Rated speed rpm : 335 Del. quantity cm3/1000 strokes : 24.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 5.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance		: ← 4.0
Rated speed rpm : 335 Del. quantity cm3/1000 strokes : 24.0 Tolerance cm3/1000 strokes : +- 3.0 Check tolerance cm3/1000s. : +- 5.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance	Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	: 100 : 21.00 : + 1.00 : 130.0 : + 20.0
Del. quantity cm3/1000 strokes : 24.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 5.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance	LOW IDLE	
<pre>cm3/1000 strokes : 24.0 Tolerance cm3/1000 strokes : +- 3.0 Check tolerance cm3/1000s. : +- 5.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance</pre>		: 335
<pre>cm3/1000 strokes : +- 3.0 Check tolerance cm3/1000s. : +- 5.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance</pre>	cm3/1000 strokes	: 24.0
cm3/1000s. : + 5.0  Spreed  Tolerance cm3/1000 strokes : 5.0  Check tolerance	cm3/1000 strokes	: +- 3.0
cm3/1000 strokes : 5.0 Check tolerance	cm3/1000s. Spreed	: +- 5.0
	cm3/1000 strokes	: 5.0
		: 9.0
	cm3/1000s.	: 9.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 23.07.96 Edition Test oil : 23.07.96

Combination No. : 0 402 748 809

Injection pump

Pump designation : PES8P12CA920/4LS7320

EP type number : 0 412 728 809

Governor

Governer design. : RQV325...950PA848

: K

Governer no. : 0 421 815 388

Cust. part No. : 313605214F2

Customer-spec. information 
 Customer
 : MACK

 Motor
 : E9-500

 Power KW
 : 373.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C 40 Tolerance  $^{\circ}$ C :  $\leftarrow$  2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 2.8 Tolerance bar : ← 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 3.60Tolerance mm :  $\leftarrow 0.05$ 

Check

tolerance mm : ← 0.10

Rack travel in mm : 10.50 Tolerance mm :  $\leftarrow$  1.50

Firing order : 1-2-7-8-4

: - 6- 3

Phasing : 0-45-90-135-180

: -270-315

Tolerance : **←** 0.30

Check

tolerance \*NW :  $\leftarrow$  0.75

Start of delivery blocking

Tolerance : +- 0.50

Check

tolerance \*NW : **←** 0.75

Barrel no. : 1

# BASIC SETTING

Rated speed rpm : 950

Rack travel in mm: 15.15 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 243.0

		•	
Tolerance cm3/1000 strokes	: + 1.0	RATED SPEED rack travel mm Rated speed rpm	
Check tolerance cm3/1000s.	: ← 4.0	Tolerance 1/min	: +- 5
Spreed		rack travel mm Rated speed rpm Tolerance 1/min	: 1150
Tolerance cm3/1000 strokes	: 5.0	rack travel mm	_
Check tolerance cm3/1000s.	: 9.0	Rated speed rpm	: 1500
Rack travel in ma	. 5.30	LOW IDLE	<del></del>
Tolerance mm  (B) SETTING OF IN. WITH GOVERNOP	: + 0.20	control lever position degree tolerance degree	
#7.1.1 20.4EUDOD		Testing:	
GUIDE SLEEVE POSI	TION	Rated speed rpm rack travel mm Tolerance mm	: 325 : 5.30 : + 0.20
Rated speed rpm	: 1150	Rated speed rpm	
Rack travel in mm Tolerance mm		CRT mm min.	
FULL LOAD DELIVERY	Y AT FULL LOAD STOP	Rated speed rpm	: 400
Rated speed rpm Aneroid pressure	: 950	TORQUE CONTROL	
hPa Del. quantity cm3/1000 strokes	: 1200 : 243.0	Rated speed rpm rack travel mm Tolerance mm	: 950 : 15.15 : + 0.05
Tolerance cm3/1000 strokes Check tolerance cm3/1000S. Spreed	: ← 1.0 : ← 4.0	Rated speed rpm rack travel mm Tolerance mm	: 14.40
Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 5.0 : 9.0	Rated speed rpm rack travel mm Tolerance mm	
CIRS7 10003.	. 7.0	ANEROID/ALTITUDE	
CONTROL LEVER		+ COMPENSATOR TEST	
control lever position degree tolerance degree		SETTING  Rated speed rpm Pressure hPa	: 950 : 1200

rack travel mm	: 15.15
Tolerance mm	: ← 0.10
Pressure hPa	: -
Rated speed rpm	: 950
rack travel mm	: 8.75
Tolerance mm	: + 0.20
MEASUREMENT	
Rated speed rpm	: 950
Pressure hPa	: 535
rack travel mm	: 12.85
Tolerance mm	: + 0.20
Pressure hPa	: 230
rack travel am	: 10.35
Tolerance mma	: +- 0.65
Start interlock	
Rated speed rpm	: > 100
Rated speed rpm	: < 260
Check speed 1/min Check	: > 80
speed 1/min	: < 270

Aneroid pressure		
nPa	:	1200
Rated speed rpm	:	650
Del. quantity		
cm3/1000 strokes	:	259.0
Tolerance		
cm3/1000 strokes	: +	- 3.0
Check tolerance		
cm3/1000s.	: +	- 6.0
Spreed		
Tolerance		
cm3/1000 strokes	:	10.0
Check tolerance		
cm3/1000s.	:	14.0
Aneroid pressure		
hPa	:	-
Rated speed rpm	:	<b>400</b>
Del. quantity		
cm3/1000 strokes	:	146.0
Tolerance		
cm3/1000 strokes	; +	- 2.0
Check tolerance		
cm3/1000S.	: +	- 4.0

# STARTING FUEL DELIVERY

Rated speed rpm	:		100
rack travel mm	:		11.20
Tolerance mm	:	+-	0.50
Del. quantity			
cm3/1000 strokes	:		185.0
Tolerance			
cm3/1000 strokes	:	+	20.0
Check tolerance			
cm3/1000s.	:	+-	25.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microgard(s) 9400/...

Edition : 11.02.97 Test oil : ISO 4113

Combination No. : 0 402 798 803

Injection pump

Pump designation : PES8P120A920/4LS7336

EP type number : 0 412 728 813

Governor

Governer design. : RE30

Governer no. : 0 421 890 034

Cust. part No. : 313 60 5209

Customer—spec. information Customer : MACK Motor : E9-550 Power KW : 410.0

# TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40 Tolerance °C : ← 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 103

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

arks

x inside diameter : 2.0 x length mm : 600

#### REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS No basic setting.

Setting of constant delivery under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : + 17.0 Tolerance bar : + 1.0

Prestroke mm : 3.30
Tolerance mm : + 0.05
Check

tolerance mm : ← 0.10

Rack travel in mm : 10.50Tolerance mm :  $\leftarrow 0.20$ 

Firing order : 1-2-7-8-4

: - 6- 3

Phasing : 0-45-90-135-180

: -270-315
Tolerance : + 0.30

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Start of delivery blocking

Tolerance :  $\leftarrow$  0.50

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Barrel no. : 1

(B) POSITIONER TESTING Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION Engine speed min-1: Setting point (P, R and H pump) 13.00 Uact V 3.100 CRT men Tolerance mm : +/- 0.05 Chieck : +/- 0.10 tolerance mm Check value (P, R and H pump) Uact V 1.700 CRT ram 6.15 Tolerance mm : +/- 0.25 Check : +/- 0.30 tolerance mm Setting point (M pump) Uact V 3.100 12.50 CRT men : +/- 0.05 Tolerance mm Check tolerance mm : +/- 0.10 Check value (quruq M) Uact V 1,700 CRT mm 5.50 : +/- 0.25 Tolerance mm Check : +/- 0.30 tolerance mm Stop position Uact V : Value with deenergised adjusting magnet and control rod in stop position. CRT mm 0.75 : +/- 0.25 Tolerance mm Check tolerance mm : +/- 0.35ENGINE-SPEED SENSOR (All P and R pumps not H and M pumps)

Test with control rod in stop position Engine speed min-1: 60 Amplitude V : 1.4 Tolerance V : +/- 0.6 Check tolerance V : +/- 1.20 Engine speed min-1: 600 Difference Amplitude to Amplitude V : max.1.4 (C) INJECTION PUMP WITH POSITIONER TEST POINT V1 Rated speed rpm : 900 Uact V 2.950 Del. quantity cm3/1000 strokes : 303.0 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. 11.0 FUEL DELIVERY CHARACTERISTICS Rated speed rpm 625 Uact V 2.880 Del. quantity cm3/1000 strokes : 339.5 Tolerance cm3/1000 strokes :  $\leftarrow$  5.0 Check tolerance cm3/1000s.: +- 8.0 Spreed Tolerance cm3/1000 strokes : 12.0 Check tolerance cm3/1000s.16.0 TEST POINT L1 : 325 Rated speed rpm Uact V 1.340 : **←** 0.060 Tolerance Volt

Check tolerance

Del. quantity

cm3/1000 strokes : 27.0

: + 0.070

Volt

Tolerance cm3/1000 strokes Spreed	; <b>-</b>	3.0
Tolerance cm3/1000 strokes	:	8.0
Check tolerance cm3/1000s.	:	12.0

# STARTING FUEL DELIVERY

Rated speed rpm	:	100
Uact V	:	4.700
Del. quantity		
cm3/1000 strokes	:	185.0
Tolerance		
cm3/1000 strokes	: +	15.0
Check tolerance		
cm3/1000s.	: +-	20.0
Spreed		
Tolerance		40.0
cm3/1000 strokes	:	40. <b>0</b>
Check tolerance		45.0
om3/1000s.	:	45.0

Note remarks

Refer to Service Info for test and ediustment instructions. See microcard(s) W400/...

Edition Test oil

: 08, 10, 96 : ISO 4113

Combination No. : 0 402 996 311

Injection pump

Pump designation : PES6P120A720RS8512

EP type number : 0 412 926 214

Governor

Governer design. : RE30

Governer no.

: 0 421 890 024

Cust. part No. : 313 GC 5225 P2

Customer-spec. information

Customer

: MACK

Motor

: E7

TEST BENCH REQUIREMENTS

Inlet line

: 4.2

Test oil inlet

temp. °C

40

Tolerance °C

2.0

Overflow valve

: 3 413 359 008

Inlet press. bar :

3.0

Tolerance bar

: <del>--</del>

Test nozzle holde

assembly

: 1 688 901 103

Opening pressure

bar

208.5

Tolerance bar

Test lines

: 1 680 750 008

Outside diameter : 6.0

x inside diameter:

x length mm :

2.0 ഹവ

REMARKS

Pump-specific values in Section (B)

must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery

under Section C.

BEGINNING OF DELIVERY

Test pressure bar :

Tolerance bar : +- 1.0

Prestroke mm

Tolerance mm

Check

tolerance mm : ← 0.10

Rack travel in mm: 12.00

: **←** 0.20 Toterance mm

: 1-5-3-6-2-Firing order

: 4

Phasing : 0-60-120-180-240

Start of delivery blocking

: ← 0.50 Tolerance

Check

tolerance \*NW : + 0.75

Barrel no.

: 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at

n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR

POSITION

Engine speed min-1: 0	+ Amplitude V : 1.4
Setting point	+ Tolerance V : +/- 0.6 Check
(P, R and H pump)	tolerance V : +/~ 1.20
Uact V : 3.100 CRT mm : 13.00	Engine speed min-1: 600 Difference
Tolerance mm : +/ Ü.1)5	
	+ Amplitude to
Check	+ Amplitude V : max.1.4
tolerance mm : +/- 0.10	Ī
Check value	
(P, R and H pump)	(C) INJECTION PUMP WITH POSITIONER
4.700	TEST POINT V1
Uact V : 1.700	†
CRT mm : 6.15	+ Rated speed rpm : 900
Tolerance mm : +/- 0.25	+ Vact V : 3.050
Check	+ Del. quantity
tolerance mm : +/- 0.30	+ cm3/1000 strokes : 310.0
	+ Tolerance
	+ cm3/1000 strokes : +- 1.0
Setting point	+ Check tolerance
(M pump)	+ cm3/1000s, : - 5.0
	+ Spreed
Uact V : 3.100	† Tolerance
CRT mm : 12.50	+ cm3/1000 strokes : 8.0
Tolerance mm : +/- 0.05	+ Check tolerance
Check	+ cm3/1009s. : 14.0
tolerance mm : +/- 0.10	+
Check value	FUEL DELIVERY CHARACTERISTICS
(M pump)	Rated speed rpm : 625
(1) pulipy	+ Rated speed rpm : 625 + Uact V : 3.260
Uact V : 1.700	+ Del. quantity
CRT mm : 5.50	+ cm3/1000 strokes : 392.0
Tolerance mm : +/- 0.25	Tolerance : 392.0
Check	- cm3/1000 strokes : +- 10.0
tolerance mm : +/- 0.30	Check tolerance
coter drice min	+ cm3/1009s. : +- 12.0
Stop position	+ Spreed
otop position	+ Tolerance
Uact V : Value with	+ cm3/1000 strokes : 16.0
deenergised adjusting magnet	+ Check tolerance
and control rod in	+ cm3/1000s. : 18.0
stop position.	1 10.0
CRT mm : 0.75	TEST POINT L1
Tolerance mm : +/- 0.25	1
Check	Rated speed rpm : 325
tolerance mm : +/- 0.35	+ Rated speed rpm : 325
	+ Uact V : 1.310
	+ Uact V : 1.310
ENGINE-SPEED SENSOR	+ Tolerance Volt : + 0.060
(All P and R pumps not	+ Check tolerance
H and M pumps)	+ Volt : + 0.070
in miner it bouleas	Del. quantity
Test with control rod	- cm3/1000 strokes : 33.0
in stop position	Del. quantity
in stok honselosi	- cm3/1000 strokes : 33.0
Engine speed min-1: 60	tillo, 1000 Sti ones . 33.0
	ı

Tolerance		
cm3/1000 strokes	: +	3.0
Tolerance		
cm3/1000 strokes	: +-	3.0
Spreed		
Tolerance		
cm3/1000 strokes	:	6.0
Tolerance		
cm3/1000 strokes	:	6.0
Check tolerance		
cm3/1000s.	:	14.0
Check tolerance		
cm3/1000s.	:	14.0

# STARTING FUEL DELIVERY

Rated speed rpm	:	1 <b>0</b> 0
Uact V	:	4.700
Del. quantity		
cm3/1000 strokes	:	195.0
Tolerance		
cm3/1000 strakes	: +	19.0
Check tolerance		
cm3/1000s.	: +-	22.0
Spreed		
Tolerance		
cm3/1000 strokes	:	40.0
Check tolerance	-	
cm3/1000s.	:	50.0
	-	

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 11.02.97 : ISO 4113 Test oil

Combination No. : 0 403 466 152

Injection pump

Pump designation : PES6MW100/120RS1238

EP type number : 0 413 406 237

Governor

Governer design. : RSV500...1100MW0A368

Governer no. : 0 420 085 251

Cust. part No. : 3926378

Customer-spec. information

Customer : CDC Motor : 6 CT Power KW : 143.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : → 2.0 Tolerance \*C

Överflow valve : 2 417 413 093

Inlet press. bar : 2.0 : **←** 0.1 Tolerance bar

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

208.5 bar Tolerance bar :  $\leftarrow$  1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : +- 1.0

Prestroke mm : : +- 0.05 Tolerance mm Check

tolerance mm : +- 0.10

Rack thavel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

Tolerance : +- 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery blocking

\*NW after s.o.d. : 8.00 : ← 0.50 Tolerance

Check

tolerance \*NW :  $\leftarrow$  0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack

15.00 travel Difference \* CS : 2.00

BASIC SETTING

Rated speed rpm : 1100	
	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm : 11.00	D.A. J
Tolerance mm : + 0.05	Rated speed rpm : 1100 Aneroid pressure
Del. quantity	hPa : 900
cm3/1000 strokes : 132.0	Del. quantity
	cm3/1000 strokes : 132.0
Tolerance	Tolerance
cm3/1000 strokes : + 1.0	cm3/1000 strokes : ← 1.0
Check tolerance	Check tolerance cm3/1000s. : ← 4.0
cm3/1000s. : + 4.0	Spreed
	Tolerance
Spreed	cm3/1000 strokes : 4.0
<u>+</u>	Check tolerance
Tolerance + cm3/1000 strokes : 4.0 +	cm3/1000\$. : 7.5
cms/1000 strokes : 4.0	
Check tolerance	
cm3/1000s. : 7.5	CONTROL LEVER
<del></del> +	
†	control lever
Product arrange is 500	position degree : 94.0
Rated speed rpm : 500	tolerance degree : +- 4.0
Rack travel in ma : 5.15	PATED SPSED
Tolerance mm : + 0.10	rack travel mm : 10.00
Del. quantity	Rated speed rpm : 1160
cm3/1000 strokes : 22.5	Tolerance 1/min : +- 5
Tolerance + cm3/1000 strokes : + 2.0 +	
cm3/1000 strokes : +- 2.0 +-	rack travel mm : 6.00 Rated speed rpm : 1230
cm3/1000s. : +- 4.5	hated speed rp.ii : 1230
Spreed	rack travel mm : 1.00
Tolerance	Rated speed rpm : 1400
cm3/1000 strokes : 3.5	
Check tolerance + cm3/1000s. : 5.5 +	rack travel mm : 6.00
cm3/1000s. : 5.5	Rated speed rpm : 1230
Ī	
(B) SETTING OF INJECTION PUMP	
WITH GOVERNOR +	
†	LOW IDLE
<u> </u>	
GUIDE SLEEVE POSITION	control lever
+	position degree : 80.0
+	tolerance degree : + 4.0
control lever	Control to an Alex
position degree : - 3 + Rated speed rpm : 800 +	Control lever difference Grad : 14.0
Kated speed rpm : oou	tolerance degree : + 4.0
Rack travel in mm: 0.50	toto, alloc degice . Tio
Tolerance mm : + 0.20	Setting point w/out bumper spring
governor spring +	Rated speed rpm : 500
pre-tension +	rack travel mm : 4.65 Tolerance mm : + 0.10
click setting x : 3.25 +	Tolerance mm : +- 0.10

N17

## Testing:

Rated speed rpm : 500 ruck travel mm : 5.15 : **←** 0.10 Tolerance mm

Rated speed rpm : 100

CRT mm min. : > 19.00

#### TORQUE CONTROL

Rated speed rpm : 1100 rack travel mm : 11.00 : +- 0.05 Tolerance mm

Rated speed rpm : 750 rack travel mm : 11.70
Tolerance mm : + 0.10

Rated speed rpm : 1000 rack travel mm : 11.45 : **←** 0.20 Tolerance mm

Rated speed rpm : 950 rack travel mm : 11.50 Tolerance mm : + 0.20

## AMEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500 900 Pressure hPa

Pressure hPa 500 Rated speed rpm : 10.30 rack travel mm : : + 0.20 Tolerance mm

#### **MEASUREMENT**

500 Rated speed rpm :

590 Pressure hPa rack travel mm : 10.80 : **←** 0.20 Tolerance mm

Pressure hPa : 545 rack travel mm : 10.60 Tolerance mm : +- 0.20

Start interlock

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa 900 Rated speed rpm : 950 Del. quantity

cm3/1000 strokes : 141.5

Tolerance

cm3/1000 strokes :  $\div$  2.0 Check tolerance

cm3/1000s. : +- 5.3

Spreed

Tolerance cm3/1000 strokes : 6.0 Check tolerance

cm3/1000s.9.0

Aneroid pressure

Rated speed rpm : 500 Del. quantity

cm3/1000 strokes : 117.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance

: +- 3.0 cm3/1000s.

## STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : + 1.00

Del. quantity

cm3/1000 strokes : 177.0 Tolerance

cm3/1000 strokes :  $\leftarrow$  10.0

Check tolerance

cm3/1000s. : **←** 13.0

# LOW IDLE

Rated speed rpm : 500 Del. quantity

cm3/1000 strokes : 22.5

Tolerance

cm3/1000 strokes :  $\leftarrow$  2.0 Check tolerance cm3/1000s. : +- 4.5

Spreed Tolerance

cm3/1000 strokes : 3.5

Check tolerance

: 5.5 cm3/1000s.

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 94.02.97 Edition Test oil : 194.02.97

Combination No. : 0 402 076 809

Injection pump

Fump designation : PES6P1008320RS3384

EP type number : 0 412 006 713

Governor

Governer design. : RSV400...1125P0A644

Governer no. : 0 421 833 557

Cust. part No. : 51.11103-7564

Customer-spec. information Customer : MAN

: DO826 LE531 Motor

: 191.0 Power KW

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C Tolerance °C : +- 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0 Tolerance bar :  $\leftarrow$  0.1

Overflow quantity

min. l/h : 150 Tolerance l/h : + 10.0

Test nozzle holde

assembly : 1 688 901 103

Opening pressure

: 208.5 bar Tolerance bar : + 1.5 Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.30 Tolerance mm : +- 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 13.50 Tolerance mm :  $\leftarrow$  0.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 : +- 0.30

Phasing Tolerance

Check

tolerance \*NW : + 0.50

Start of delivery blocking

: +- 0.10 Tolerance

Check

tolerance \*NW : **←** 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 925

Rack travel in mm: 14.10

Tolerance mm :  $\leftarrow$  0.05

Del. quantity cm3/1000 strokes :	198.0
Tolemance cm3/1000 strokes :	+ 1.0
Check tolerance cm3/1000s.	+ 4.0
Spreed	
Tolerance cm3/1000 strokes :	4.0
Check tolerance cm3/1000s.	6.0
Rated speed opm :	400
Rack travel in mm : Tolerance mm :	4.90 ← 0.10
Del. quantity cm3/1000 strokes :	25.0
Tolerance cm3/1000 strokes :	<b>←</b> 3.0
Check tolerance cm3/1000s. :	<b>←</b> 6.0
Spr <del>ee</del> d Tolerance	
cm3/1000 strokes : Check tolerance	3.5
cm3/1000s. :	5.5
(B) SETTING OF INJECT WITH GOVERNOR	CTION PUMP
GUIDE SLEEVE POSITIO	)N
control lever position degree : Rated speed rpm :	- 3 800
Rack travel in mm : Tolerance mm :	<ul><li>0.50</li><li>← 0.20</li></ul>
<pre>governor spring pre-tension click setting x :</pre>	5.00
FULL LOAD DELIVERY A	T FULL LOAD STOP
Rated speed rpm :	925

: 1500
: 198.0
: <b>←</b> 1.0
: ← 4.0
: 4.0
: 6.0
<del></del>
: 101.0 : ← 4.0
: 12.50 : 1155 : ← 5
: 4.00 : 1245 : + 15
: 0.85 : ← 0.55 : 1400
: 4.00 : 1250

# LOW IDLE

control lever

position degree : 77.0 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 400 rack travel mm : 4.40 Tolerance mm : + 0.10

Testing:

Rated speed rpm : 400 rack travel mm : 4.90 Tolerance mm : + 0.10

rack travel mm	. 2.00	+ Rated speed rpm	• 1125
Rated speed rpm	_ ·	+ Del. quantity	. 1123
Tolerance 1/min		+ cm3/1000 strokes	: 187.0
		+ Tolerance	
		- + cm3/1000 strokes	: ← 3.0
TORQUE CONTROL		+ Check tolerance	
Pated speed and	. 625	- cm3/1000s.	: +- 6.0
Rated speed rpm	: 925 : 14.10	Aneroid pressure	
rack travel mm Tolerance mm	: ← 0.05	hPa	: 1500
		Rated speed rpm	
Rated speed rpm	: 1125	+ Del. quantity	
rack travel mm		+ cm3/1000 strokes	: 194.0
Tolerance mm	: <del></del> 0.05	+ Tolerance	
Dahad saad oo	7:20	+ cm3/1000 strokes	
Rated speed rpm		+ Check tolerance + cm3/1000s.	
rack travel mm Tolerance mm	: + 0.10	1 (m3/1000).	: <del>←</del> 6.0
rocer direct min	0.10	Aneroid pressure	
Rated speed rpm	: 1025	+ hPa	: -
rack travel mm	: 13.95	Rated speed apm	: 500
Tolerance mm	: <b>←</b> 0.10	+ Del. quantity	
		+ cm3/1000 strokes	: 88.0
ANIFORTA /AL TITLINE		Tolerance	. 4.0
ANEROID/ALTITUDE COMPENSATOR TEST		+ cm3/1000 strokes + Check tolerance	
COMPENSATOR TEST		+ cm3/1000s.	
		1	4.0
SETTING		+	
Data da ana da da da da da da da da da da da da da			
Rated speed rpm Pressure hPa		+ STARTING FUEL DEL	.IVERY
rack travel mm		Rated speed rpm	• 100
Tolerance mm		rack travel mm	
		+ Tolerance mm	
Pressure hPa		+ Del. quantity	
Rated speed rpm		+ cm3/1000 strokes	: 110.6
rack travel mm	· · · · · · · · · · · · · · · · · · ·	+ Tolerance	40.0
Tolerance mm	: +- 0.10	+ cm3/1000 strokes	: ← 10.0
MEASUREMENT		+ Check tolerance + cm3/1000s.	: ← 14.0
MEASUREMENT		I cm3/10003.	. — 14.0
Rated speed rpm	: 500	+	
		+	
Pressure hPa	: 150	1	
rack travel mm Tolerance mm	: 9.85 : +- 0.05	+ LOW IDLE	
localance unit	. — 0.03	Rated speed rpm	: 400
Pressure hPa	: 800	Del. quantity	. 400
rack travel mm	: 12.50	+ cm3/1000 strokes	: 25.0
Tolerance mm	: <b>←</b> 0.15	+ Tolerance	
		+ cm3/1000 strokes	: <b>←</b> 3.0
Start interlock		Check tolerance	
		+ cm3/1000s. + Spreed	: <b>←</b> 6.0
<del></del>		- + Spreed - + Tolerance	
FUEL DELIVERY CHA	NRACTERISTICS	+ cm3/1000 strokes	: 3.5
- The Public VIII	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Check tolerance	
Aneroid pressure			
		+ cm3/1000s.	: 5.5
hPa	: 1500	+ cm3/1000s.	: 5.5

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 31.01.97 Test oil : ISO 4113

Combination No. : 0 402 086 702

Injection pump

Pump designation : PES6P100B321RS3388

EP type number : 0 412 006 714

Governor

Coverner design. : RSV400...1125P0A674

Governer no. : 0 421 833 592

Cust. part No. : 51.11103-7564

Customer-spec. information

Customer : MAN

: D0826 LE531 Motor

Power KW : 191.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temo. °C Tolerance \*C

: ← 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Overflow quantity

min. l/h : 150 Tolerance l/h : + 10.0

Test nozzle holde

assembly : 1 688 901 303

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

DEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.30Tolerance mm :  $\leftarrow 0.05$ 

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 13.50

Tolerance mm :  $\leftarrow$  0.50

Firing order : 1-5- 3- 6- 2-

Phasing : 0-60-120-180-240

Tolerance : +- 0.30

Check

tolerance \*NW : **←** 0.50

Start of delivery blocking

: +- 0.10 Tolerance

Check

tolerance \*NW : **←** 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 925

Rack travel in mm: 14.10

Tolerance mm :  $\leftarrow$  0.05

Del. quantity cm3/1000 strokes : 198.0	Tolerance cm3/1000 strokes : +- 1.0 Check tolerance
Tolerance cm3/1000 strokes : + 1.0	cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 4.0
Check tolerance cm3/1000s. : + 4.0	Check tolerance cm3/1000s. : 6.0
Spreed	
Tolerance cm3/1000 strokes : 4.0	CONTROL LEVER
Check tolerance cm3/1000s. : 6.0	position degree : 100.0 tolerance degree : +- 4.0
Rated speed rpm : 400	RATED SPEED rack travel mm : 12.60 Rated speed rom : 1175
+	Tolerance 1/min : + 5
Rack travel in mm: 4.90 + Tolerance mm: + 0.10 + Del. quantity + cm3/1000 strokes: 25.0 +	rack travel mm : 4.00 Rated speed rpm : 1265 Tolerance 1/min : +- 15
Tolerance + 3.0 + Check tolerance +	rack travel mm : 0.85 Tolerance mm : + 0.55
cm3/1000s. : + 6.0 + 5preed	Rated speed rpm : 1400
Tolerance + cm3/1000 strokes : 3.5 + Check tolerance +	rack travel mm : 4.00 Rated speed rpm : 1265
cm3/1000s. : 5.5	
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	LOW IDLE
GUIDE SLEEVE POSITION	<pre>control lever position degree : 76.0 tolerance degree : + 4.0</pre>
control lever	Setting point w/out bumper spring
position degree : - 3	Rated speed rpm : 400 rack travel mm : 4.40
governor spring + pre-tension +	Tolerance mm : +- 0.10
click setting x : 5.00	Testing:
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 400 rack travel mm : 4.90 Tolerance mm : + 0.10
Rated speed rpm : 925 Aneroid pressure hPa : 1500 Del. quantity	rack travel mm : 2.00 Rated speed rpm : 490 Tolerance 1/min : +- 30
cm3/1000 strokes : 198.0	

TORQUE CONTROL	
Rated speed rpm	: 925
rack travel mm	4.4.4
Tolerance mm	: 14.10 : +- 0.05
Rated speed rpm	
rack travel mm	: 13.60
Tolerance mm	: <b>←</b> 0.05
Rated speed rpm	: 700
rack travel mm	: 14.15
Tolerance mm	: + 0.10
Rated speed rpm	
rack travel mm	: 13.95 : +- 0.10
Tolerance mm	: +- 0.10
ANEROID/ALTITUDE	
COMPENSATOR TEST	
Setting	
Rated speed rpm	: 500
Pressure hPa	: 1500
rack travel mm	: 14.10
Tolerance mm	: ← 0.15
Pressure hPa	500
Rated speed rpm	: 500 : 9.60
rack travel mm Tolerance mm	: 9.60 : ← 0.10
roterance iiiii	. ** 0.10
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa	: 150
rack travel mm	: 9.85 : + 0.05
Tolerance mm	0.05
Pressure hPa	: 800
rack travel mm	: 12.50
Tolerance mm	: ← 0.15
Start interlock	
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure	
hPa	: 1500
Rated speed rpm	: 1125
Del. quantity	407 0
cm3/1000 strokes	: 187.0

Tolerance			
cm3/1000 strokes			3.0
	•	-	5.0
Check tolerance			
cm3/1000s.	:	+-	6.0
Aneroid pressure			
hPa	:	4	1500
Rated speed rpm		,	700
	٠		100
Del. quantity			40 0
cm3/1000 strokes	:		194.0
Tolerance			
cm3/1000 strokes	:	+	3.0
Check tolerance			
cm3/1000s.	:	+-	6.0
Aneroid pressure			
hPa	:		-
Rated speed rpm	•		500
Del. quantity	•		500
cm3/1000 strokes	:		88.0
	•		00.0
Tolerance			
cm3/1000 strokes	:	+-	1.0
Check tolerance			
cm3/1000S.	:	+	4.0

STARTING FUEL DEL	IVERY	
Rated speed rpm rack travel mm Tolerance mm Del. quantity	: : : +-	100 9.60 0.20
cm3/1000 strokes Tolerance	:	110.0
cm3/1000 strokes	: ←	10.0
Check tolerance cm3/1000S.	: +-	14.0

LOW IDLE		
Rated speed rpm Del. quantity	:	400
cm3/1000 strokes Tolerance	:	25.0
cm3/1000 strokes	: +	- 3.0
Check tolerance cm3/1000S.	: +	- 6.0
Spreed Tolerance		
cm3/1000 strokes Check tolerance	:	3.5
cm3/1000s.	:	5.5